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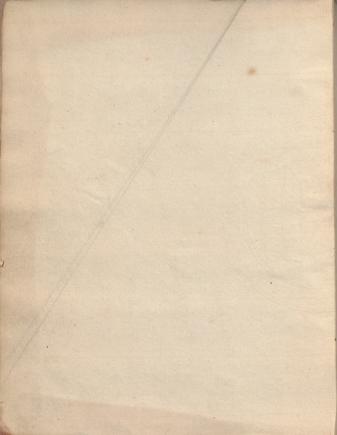
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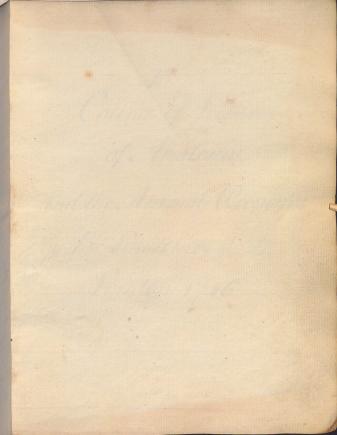
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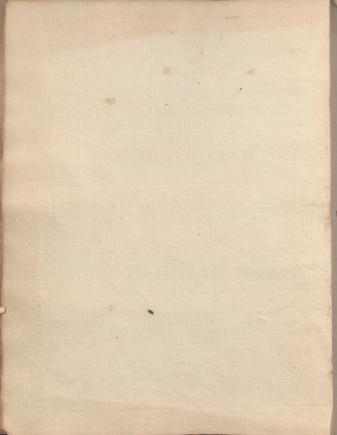


R Blakelick

R. I. P.







Course of Lectures of Inatomy and the Animal Oconomy by B: Lawrence M: D. London 1746



Manuscripto 1 pts cent

Gent?

I am going to lay before you a lourse of before of the One made Cean any in which I shall deveribe to you the Shruckure of the clark on which it depends and shall show you how it comes to pays that those park which are in their sown Siturera puter weekle are yet personed from Sitrefaction; but it will be perforted from Sitrefaction; but it will be perforted from Sitrefaction; but it will be perforted with promise to you that many of the things to be advanted wolk not admit of Demonstration, not that they are the left fine; but because they are in their own Satiranuch that Analogy is the only the are we have of downing at their Truth, from their we make

our Deductions & draw the most probable Inferences

That Species of Beings which is call an Animal is the Subject of Inalony; it we vald to be compounded of two Principles call to by delpt but the latter in Man dehall divide into other Grince ples, the one of which I shall call Anima the other Animus: the latter is that which thinks perceives, and directs allow no Sundary Motions, as the lifting my Ann to my Head, but the former is the Principle of Life and directs allows involunta ry Motions, of this Me give you and notance; a Man your in to a Home wheresunknown to him they are grinding Tobacco, the Dust of which flying about in a great Quantity some of itgets into his Northily, into his mouth & down his Throat, upon this he is seized with a tometing, a tomiting which is without any Derection of the Mind, without any Converousnes of the Mind. and wwhat he cannot popully avoid: The Anima in a Mann imporceptible to him railed this convulsive Motion in the Sto mach, Diaphragm, to Abdominal Muscles in Order to free the Body of this offensive Matter:

Thevame is to be observed in coughing, which le howier is an

involuntary Motion raised for the same Pur pove as the former: What is it that makes some blush in to bion and others grow pall Where whall we find any other Cause for critical Hamourhages? for these have not only the fireumstance of the weakest topicle burst zing, but they are always praceeded by particular Symptoms, to are occasion by a Determination of Fluids to the Parts where it is intended to be made : If in the Nove there is a Siffrefs of the Mach a fain in the Head, a Inging in the Care, Hedne for of the Jacob Eyes, when at length the boloor topsels become on a sudden inita Seo, a Discharge vueceds and all the Symptoms go off; A Ha = morrhage by the Hamoro hord alterns too is not ore as rond assort have imagind by the perpendicular Descent & Gravity of the blood, or the creek to here of the Body, for order the Potiente to be laid you find no Watement of the Symptoms, but frequently greater fain Womehmespresent Evacuation; to adparen really made on the returning Blood to fiels of those Carts which brings on the Homorrhage Manding or lying: To there Ile and an other In whomee ! When we arrive at Buberly or approach it which is as bout the, we are generally attached with a Giddings of the Head and lomiting, the vulgar Opinion is, that the Head is gitting beseawe the Stomach is wick, but to the Stomach is wich because the Head is disordered: at this age we must consider thede . fures begin to coalesce, grow closer, & the Bones harder; but 4 Blood is now determined in a greater Quantity to the Hood adais Ly enereaves, and the Bone's not receding aljedinch from a Surcharge ensues, and from thence a familing, which the Unio ma unknown and impercopsibly to us occasions, to make more hoom and Liberty for the recent with hills and before the fire the some of the brain of the the of that the brain and threatens the Destruction of the Animali than the brain and threatens the Destruction of the Animali than the segre at and advantagions of the Animali than the Animal is the friend which governs the Unsmal Conomy and ach upon all Oreasions propter Lines.

It is here capeciad to be ash of thew Actions are not purely me rehanical, or if the Animal benot a more mechanical Cogine? Willie contary we cavely from which in without any Develop are set receiving as they are put in the tion without any Develop are Intelligence whereas we perceive in all the foregoing Instances the Actions are allo wively performed for the water thousands and allowed from a third inexplicable by mechanism of which oan result from no thing but an intelligent Rinciple we which oan result from no thing but an intelligent Rinciple we

Sead the Anima:

But vemer willway may they not be that it? To which Sanuare in the Nigative ? For there are no Actions however hatinate or familian by two but what we are in some Degree conscious of the unhabed a Actions that are habitual may eavily be and spended or happed when we are attentive; but we can by no low we whatever control coughing or any of those (letin w which we call involuntary; Habits are) facile by trepetition, are more familiar by tractice; which is not so of the Actions of the line may for they are as easily performed at the first Indication of their receivity as if they had been repealed a those and times,

a Roof of this we have in new born Children's familing the Meco nium; no Mechanism, no Habit, no conscious Principle is out frient to explain these wive, necessary, & beneficial Purposes -The Animal as a Machine, I consider as a Hydraulic Enigine whose Fluido are put in Motion by the two Springe Animus and Anima, the one performs the involuntary unconseis cous Motions, the other the voluntary & conscious ones; the whole being so fabricated and contrived as to be able to perform all the Sunctions necessary to its Existence; the different Man mers in which Animals exist is what I call their Specifica then which is adapted to their veveral Exigencies of life : Jo · Tinher lever thater, and upon this Account are furnished with Bladder to make them velves lighter, heavier, or of the same Gravity with that Henum; these Bladsers are inclashed so that the contains dir only is affected, when any of these Fished would be heavier than the Hater, he strongly compressed the Blad eden & vice versa when he would be lighter; but when he would be of equal wight with it, he befrows it only to a certain Degree, Some have two Bladders one towards the Head and another near the Tail which is contined as they are Tisher of hey for their easy ascending and descending in Hater, when the former is intended he compresses the foremost, in the lattic lase, that warest the Tail; When either of them would swim to the Hight, he extends to draws round the left Fin, when he designed for the left, the right Sin is employed, would be stop at any place then both are shetched out; his Sail likewise serves him as a

touts which are Inhabitants of the Air have other Creum tances to devote their Spreafication, is being intinded for flying as well as walking they change their perfendicular Centre of Gravity, which in flying is done by the thing out their Stead, and then it is vitue atto betwist their Hings, but in walking the Stead is drawn in and then we find it betwist their legs; with their Hings they cleave the Air mount aloft; and with their various Motions, and those of their Tails they diversify their Flight according to their Heavure be Secofily:

Every Species of Animals houses Conveniences and Inconveniences. The Conveniences of Han are his erect Boshure which is most weld able for Bu fings for which he was designed; but had he moved upon four Lega, his Brain which is the largest of all the enimals must have been placed at the End of a long Sech in order to feed, and it was a wise Observation of Galen, that Providence

yave Man a Hand as being a rational Animal -

The Inconveniences which at Sind Man are that he can't fast wo long now eat so much at a time as other Animals. For the great Arting running down upon the Spina Down and the Short and other hiver a lying upon it, whenever the Somach is distinguished with Took the Norta is necessarily profit after eating though want of the thood retarded; hence Shepiness after eating thous in Quadruped the love is otherwise for by their horizoldal boston on, the more the Somach is fill, the by is the Compression of the great eletery; Tasking is no life in convenient to than thon of the great eletery; Tasking is no life in convenient to than thon or wise eating, for when by the Stomach's being empty all the fewering removing from the lords; the Blood discende in hos great a Quantity which making the Supply to the Stead too imall, Jaintach ensure

But there is another Inconveniency for greater than these or than is any other Animal is subject to which is the Sone; for the Exerctory Quel of the Pelow in the Rivney not ariving from the Bottom, but the middle, there must always be a stagnation of the veereted Fluid be stock's with any Salss or Earth disposed to concrete, those Subwhances must be form a which come under the Denomination of Stones. Anatomy is the Demonstration of the Karte of an Unimal, from the known Shuckure and Use of which, we come at the Know, ledge of the animal Oconomy; The Subject of this, is every Union in general, as Quadrupeds, Birds be, the Description of which is called Comparative Anatomy; but Man is the special Subject par treatarly for they real Ufes; for anatomy is not only a curious em spertaining part of natural Philosophy, but is also of extension Places the Dragnostick & Rognostick & Theur opeur hick parts of moreine, the hactice of which is greatly cleared up by it, for from it we discon were that such and such things will befauses of Disorders in the Animal, we then deduce what things will be proper to restore its Health and preverve it: The Kinciples as the Cymists call them of the Unimal Substance are lasth, Hater dir, universal and & Phlogiston or Sulphur Earth is of itself a white matter, first and immutable in the Fire and indipoluble in Haler; but if an Olio be mix'd with it or added to thit entirely depolves in the Water; to that show Huids which we call Symphatick may contain Earth in a great Quantity: and under the Form of Aliment a great part is conveyed into our Bodies even by the most limped water; that Hater may contain Earth and

yethe clear is proved by the following Experiment take a little burnt Markhorn which is pure Earth and put it into a Glap of Mater, which

Novit up and the Hoter appears milhy with grow Particles swim ming in it, but add thereto a little there its afe tike and the whole will quickly become tianiparent as Sountain Hoter without any Recipitation; Befiev Tea Settles sufficiently prove that Water contains a great deal of Earth; So mineral Waters being exposed a little while till their acco Spirit evaporates and the Seel then falls to the Bottom: Every part of our Bodies confain a fortion of Earth: In our first Existence in the Hombour Staters that of a Fluid, the earthy parte of which uniting first form Tibres, of them joind together are made humbranes Ligament Carhlages & Bones which latter are harder and firmer than the other parts in proportion as they contain more or less of this Earth. which coheres by means of the Thlogiston as we see in Charcoal, which being thoroughly burnt, the Phlogiston is consumed and all the larth falls as under: It's Quantity is various in theko dy in various ages Wonrious Nates of the Body. In old Pople it is generally accumulated in great anastity, that those who die burely of the age de thro the rigid State of their Thores from a superabundant Quantity of Earth: Some have had a fortion of their dorto perfectly opified, in the last Subject I difected found a part of the eneral artery of ifer, its no uncommon thing for Othople to die of mortifications at their Extremities between believe Opifications of the Anteries paquently happen the they have not been observed formetimes this Earth is deficient in our Bodies as is the lave in Chloroliches, which happens from the weak Impelus of the Blood in the lepels so that it remains suspended in the Hueds for the yes alie the Force of the Blood, the greater is the Division of the Earth contain's therein, from whence it is more easily carried into the minuter tofels and therebecomes

accumulated and united to the Tibres; the thre is to give a greater

Thirty and Thomnafe to the Body -

The Mater which maker offers of the animal Substance may come of the collecte by holony a Glofo over the Moonen of such as are recently dead and opend, when the topour well be consented on with those Charasteriche which denoterit to be Mater tho simpure and mist; but the most simple is obtained by Distillation with a gentle Heat: It serves as atthicle to fother that the The last obtained by Inceneration, and by immerging puter offing forthe in thater when you will presently weether Ar but the tolk of the Ar but. The last in the Month of the Residence of the in Mater in that the coff the Residence of the in Amount the dead with the containing

Glafoer:

Of level there are vereral hinds from the Mixtures of different Suantities the unit newal lied is a subtil Rineiple, very difficult to be collected way Even Oil of third and Caleathan contains one Earth. It would always for the Universe that floating in the Circis of all others the hour imple; that it down exist in the live we experience by setting Spraf of to the one with down exist in the live we experience by setting Spraf of to the one of the decimental was attended to the Chief of the Chief become a Site at the classical the attended to the count in the the movers of the Chademar of the contained the Paris, that wome them he the movers of the Chademar of the contained to the land of the contained to the land of the Chademar of the Chad

whose Halle is frequently collected a great Quantity of neutral Salt This universal Red united to Earthy, Minerals, Lege tables & Unimale is found in a more mice de State than when in dir, and in reparable from either of there hadies by a violent Motion, or elde by alonghis long continued motion, as leid frish are drawn from Priol and Nitroby a wislent fire; and if allum be exposed to the Heat of the Sun for some time, therente offer boil ring putrefying, and all formented Liquore depolored will yole Leid topours; this deed variously combinated with Earth Water and the girton maker Satte, Oils, Mucus, Jat, howing bellones, The Cymiste acknowledge no other Difference of alle than in or for from the various species and Quantity of farth they con Jain or from Phlogiston variously combines to Oil of Buokpow red upon melled flue a fords overmble tetriol; upon elron, a man stial, upon Low it produce a vinet Sugar, upon Copper a rough Sirdigreaux with thereway it makes a wonder ful corror wer full; put to the Earth of har fall, you have Glauber's bitter hall, & being fixed with Concoal you have an alcaline latte Ait be dietilornith dur pigmentum it a forde aflice Oil like Oil of Oliver, but being often distrible from Salt of Santow it is changed into a fury Spirit; Hougreat the Roportion of it is in Gamerate spears from a Solution of Gum Soneca or Chatie in the Summer time which being hept for some time is seared to be distinguided from Ginmon Hingar: Moroover distillo Haters & formented Liquors become mucous, which proceeds only from the dies they contain: Expreped Cils digestes with theirs are inspipaled and acquire the Former of Fat, neither does the firm Consistence of Joap arise from any thing else than the Codition of common Salt to the other ingredients, Stence it is, that those Brimalite have the coffeet Sat & least compact putiefy the voonest. On

the contrary those who have the most firm and valed fat are the longer a fouthe fying; his for this headon that Hoge and Fish are more putrescible than other animals having left deid in there Composition; the Leprovy which rago in England come Mare ago was known by the greavy Skin, the fal dificles into athen Oil and can the the fores of Cit of almonde and Spirits of Nitrobe mixto to gether it will become as hard as Butter in 10 or 12 Days: Soil Oils of think on sproffiche be poured upon diville Oile they will become valid, hard, & brittle hearns, this Spirite of Pite will be aft to make them fire : In the Elixer of third a Vincture being made by finite of thine with thema siche their Epential Cibis expacted, the Bil of thich being ad ce to it the Vindure become s flocumented in a little timber by the Ried harvening of aromatich Oils which afterwards fallin agreat Coment; tout on the Contrary digest tresing with an alialine Salt & you'll procure a hi stulo like akalsam or of wantiab Oil: All Salts that mystallige are acis, and Some and nothing but (systolizations; the feins which we werein har roles are made from an seed Signor petryfying impregnates eitha with Courselon be which falling betweet the Caches in the South Sall is an all artive Earth boset with acid forcula on affin from the Comparison and analyfic splate, the Experiment on sfore mentioned confirms it where he wan the deir dunited to the Parth and made it as all (i.e) as labotance absolutely voluble on

tank and made it as all (se) as ubeloneer absolutely countered Poteris all to ker it Nature from the deed, but its Form in der sommer by the Earth, I the Earth of hea Salt be added to the Acid of Silve the Mire here will form (yber like the abolt, but)

if the larth of Nike be added to the died of Sea Salt its Sorm will be like that of Needles or Spiculas Some Persons have rediculd the Division of Salls into alialine and deed, but if we be certain of any thing we may of this, that there are these differ I Salls, for both have their certain Marks and harocteristics, all alhalies ferment with all acids, they turnelyrup of tiolets green they occasion an urinous Taste in the Mouth, not that they give it themselves but by raising the Volatile Salls of the Saleva and vetting them at Si berty, if Totalile alealies effect this more venily than the fix to be wides there alcaline Salts there are what we call alcaline Bodies, which are burnt Eartho, these likewise ferment with Oceder, but do not correspond with the Sull in all their to perties: First alcaline Salts are procured by burning leger dable, the ashes of which peing out into Hater that filtrated and evaporated, what remains is a first alcaline Talt. Vola the alcaline Salls are gain'd by Richefaction of animal & vegetable Substances, and are those which fly off by the least motion of the dir Neutrale Salls are those which do not ferment with either th seeds on alcalies, but if they be exposed to a cold air they will hurn vour, & by Heat will become volatile Mealier as we wer by the fines of Animals, they are either stabile as hetre. Petriol and Sones, or they are ace seent or alkalescent. Acide Salls have thewive their certain distinguishas ble Signe, for as all alhalies for ment with all Olives, vo all Olice's must consequently ferment with all alhalies, they've a certain Syptic Javte, they likewise hun Squet of tioleto zed,

the Species of there Sally are the Vitualie the netrous, ma = rine, vegethble and animal: If you pour Spirit oflea daltup -on hemor Tarlar, an acid Jume arifes and the charlet unites to the Earth of the Crem Jatt, this is what I call the Suborder enation offalls, but Spirite of withe added to this dispets of and of the sea Salt and Oil of Which will drive away thehe the the weaker always giving way to the stronger - Salls Chewive undergo a Commutation, i,e, are changed one into another; if four Ounces of Spirits of Nike be mix'd without Ounce of Oil of Surpentine; and digestes, alomposition will be produced answering to the toalsam of Sulphur in all he which, from which is provo the lange of the nihous acid into archiolic one; from Tilings of Steel difolod inspirit of deadalt are fer a tapour huly nitrous, both as to its heigh and Smell Suncher; Hence appears the formulation of the marine Salt into a nitrous one; and if Glauber's Salt be for wed with Charcoal, it produces an Wealine Salt, and the Pilo giston which this alcaline Salt had releived from the Car coal being burnt away in a slow open Fire it becomes Glaw aber call again; the change of heir into alealine will hap pen too from the intestine motion of Truits and other and tegetables when in a State of But efaction: The alcaline Salt with be turned into neutral by burning hevay the Thilos giston or by the Mixture of Rids -

The Specifich Deforence of an Alcali is an incomplete Saturation of its Carth, that of a New trab Salt is a perfect and adequate Saturation, and an Olive is where Shenows as

greater Quantity of Spicula than can be applied to the Earth To illustrate what I vay supposes a fubich frece of larth to contain a thousand foints to which is jointo just so many Spir - culow will cover 1, 2, 3, 4 or 500 of these fornte, this then I call an alcaline Salt, but if so many more spicula be ad ded as will exactly cover all those thousand frints it then becomes a newhal Salt; if to these more Spicula be still added it takes the Name of an acid Salt where the Spiculos adhere but very elightly: But now take this neutral lube whose Surface is completely covered by the Spicula and diwide it into four lesser luber, there will then be an Increase of Surface without an Increase of Spicula, so that now it bo comes alcalescent; carry your Division farther Wit willbe alcaline farther yet and you make it a tolotite Alcoline Thus the acid Salts of Fruits and legetables by the intestine Commotion of their Parts have their Earth vo far Livided & comminuted that they become alcaline:

There are two Sarks of law his which devery the animals Texture, the one extremely acid the other a violant allealish that there two Substances so contrary in their Nature should produce the same Effect appears very strange, but it is envily explained by the Principles we have law down; the extreme Pero effect it by depending the animals acid, as in the liberarination of balls; the Alealis destroys the Texture of the facts by the greater attraction of the Regelable Parth: And in the See paring of of the amonth cither with Suich line and Sartar it appears that the attractive Bover in the animals

Earth is weaker than all the rest? Shave explained to you the Nature and Species of Salle in gen. and how they act whon one another in order for the more easy com pickending the Nature and Properties of the Sal animalis . Theelal animalis in the Stomach in for the most part acid, but more or less according to the constituent parts ofour lood and the Heahnes or Intervene to of the action of the Somach, Farinaceous Substances will produce an acid Chyle but if the Buer of Digestion be very strong the salt in the Chyles will become neutral and of other alexant or acid Substances when they become exceedingly comminated by Digestion; butit is not often that the Cycle is neutralized tills it comes into the Interwhere by the Continuance and Increase of the Metroscence, by the Misture and consequent Tormentation of the bile to here ale Juice and other verteled Huids, it is neutraliged, from honce it as taken up into the Course of the Creato tion where if the tefels be weak it retains its present, hater or undergoes very little liferation, but where the leftels are strong it presently becomes at realescent; and a languid detion of the tifeels will produce the same hange iflong continue; now this aliales contralt is notall carried offly the Excretions, but if any of it happens to be ob. notoucted in the circulating to feels it will even change into afer speel alhali and if the fireulation be very quick lind continued a hetrefaction will arive? In all Unimals there is a fin a fimiland by which I mean a Power to change the aliments into the nutritive fuces of the body Shas ben much disputed whether there be any acid in the Blood some deny it alledging this heaven for it that this roughlot

the Blood, and therefore day they fix im populle the Unimalish love in such a State; but we find the Dovation in small De grees produce no vensible Effects, so that theremay be a State rather below the newhal, as there may be one too a ather above it inclining to the alcalescent, and yet the Animal perceive no sensible Injury of its Health; and the considering the Thirds in their valine thate as before explained will afirst you to comprehend the tolibility of this Operation; and the Sieason if we east prove it by Experiments may be coving entirely to this not being sufficiently accurate; Sydenham allowed of noticas woning or Theory in Physick, afterling that the hive of Dif eafer were inexplicable by our Deductions but attributed every Difease to a specifich Exaltation; now this is a Form absolute aly inexplicable but by the very Doction we have laid down, for if it has any the aning at all it must be that the Fluids are exalted in all Difeases to an account or alcalescent Mate; the are to consider too with the gard to acros in the Blood, that they may be so wrapped up as to do no Mischief there; this is prove by the your Excretions of some Beople, the Sweat itself being vometimes vensibly acid; and the Urine often so as appears by adding Soap Lees to it which will not mix with it when fresh evacuated; and all healthy leoples think is rather deid when first discharge, but whom standing from itenatural Disposition to Retrefaction becomes alcaline! Und here I would have you observe that acid frequently occasion the Strangury and pirits of thiob and Lemon fine the they do no matchief in any other part of the Body: The toile has often been observed to begreen; this proceeds only from the this sure of deids withit,

for nothing elve can do it, and this deid can get to the tile nowing but by Separation from the tilood, the came occasions the green

Faces of Philozen

Phlogiston who material Substance of Fire, which by the Peripatetiche is called one of the four Elements; the more modern Phylosophew call'd Copuscularians vay that Fire is only the Particles of made of put into violent motion; The Chymists a port that it is a distinct Body but is inherent in none but those is are capable of a violent motion; but there are others who affirm that when winivervally distributed in all Bodies and is conwhantly manifested when their parts are put in motion as 4 Shiking a Fire with a Seel and Stone; however it is certain that some too dies are more inflammable than others, and we find that Cilo and Sulphures are most so, as most susception ble of motion; But Fire does not seem to be in every Body for by experiments made with Glafees of the greatest Convexion My tocollect the Light reflected from the Moon, you will vee as most refulgent Light but no Increases of Heat; but Sir Ivaac Newton has provid that Light is a Body comport of different facts cles We fine to an high Mountains Heat is greater or lefe accord ring to their Steight from whence it werns that the Sheat which Bepercine from the lunis Rays proceeds only from the Resistan ces made to them by the Contenter of the Otmorphore as they paper more done to bright Lines; from which, the sistances and ther ver shed Motion is products besides that which excites Steat : and the quater the vertical Motion is which is produced the quater is the blocky of the rechlinear motion, and as thereeth linear motion proceeding either from the Line orchen decreases more

more from its fort Origin, so it may happen that scarce any Steat or vertical Metion what he excited by the occurring resisting Particles; as haspens in the Rays from the troon however collect Theo, which coming first from the Sun and reflected from the Moon the Motion they communicate is too weak to be percent Light is found to be the mout simple Allogiston, of which likewise there are various Species; purt Sulphur is made up of Water and deid 15 parts, Phlogiston one part, neither can the leveles into more Rinciples by any Out whatever; this very the logiston being obtains from Charcoal and then burntaf forder Clame exhelly revembling Sulphur and all the Species oflight are conspicuous init, as appears from Returns being wedled in that Light : fire Mogiston is extremely subtil for if one Grain of it be put upon a Wich if will give Light for an hours and that a Mile round; It is lan Ingredient in mineral Sulphur but is there les simple than in Light, but Garcoabis compose of Barth, acid, little Hater and Pologiston, In Oils loo itivan Ingredient but conjoined with Earth Salt and Water; for being burnt they leave a white Earth and vorne Salt, the Hater Pologiston and a more volalite Vall being evaporated : Misa most fixt Body unless the Air comes to it which drives it away; for be astod upon ever so long in a fielout by the Interise rest Fire, they remain unchange both as to their bulk, weight and Solidity, neither are they turned into autes before the per afflix of the Cir to them; Stunder with deis & to a small Quantity communicates its Holatility; for a little Cil of thiol mixt with So of thine becomes volatile; and many metals expecially the less valuables, by a protty large Loantity of The gistor are easily sublimed into flowers; but if there be

a greater Reportion of Weir it becomes itself fix to and loofer its Inflammability; Sulphur left whon the repeated Distillation of Oil of Philo will neither take Fire now be unblimed into. Howers, and if Papers be dipt in Call of things it will vernely burn & never flame: It united itself very clovely with Eartho both metalline and vitroscent, in which also it is most abun dant: Charcoal turnelitharge todead; for by burning a Hofer you will vee Drops of Lead fall down: Phlogiston gives Duetiality to Metale, but all you can do by Fire or by Clico will on Syverve to furn them to ashes; it makes them malterry, the Jul being laid Shatum super whatum, tis thus that Brafe melle so easily which is so difficult to putin Sus! Phlogisten gives a great farichy of folowing in other Bodies as well an Hame : Oll Glap receive their Colows either from Smoat or the Mixture of Phogiston some other Way; &if the Blogiston be extracted from coloured Stones & Glap, they become limber, and whatsoever Clow, certain Truits & the Leaves of certain Plants have they owe it all to the Light which falls upon them. It is in a left Quantity in legetables, but least of all in Un imals; With Salls it becomes the Matter of Jaste and Smell; all Bo = Dies the more odoriferous they are the greater Quan hay of Oil do they offord in Distillation; Hence it is that from Ginger be topper we gell but little Oil, and from drice & rotten Hoods none at all: The Sensation which arifes from a simple and Salt is improperly called Saste; as Jaste is that which requires Sallo to Bevariously combined with Earths & Cils to producesa farithy of Sensation

Phlogiston will not of theelf incorporate with Water, for put Charcoal into it and it will not be penchated by it; It is the an Ingredient in inflammable Spirete, the fourthetion of which appears very plain from two Experiments; to wit, Oil of Olives mix'd with new thead or any other formenting Liquor will be intimately abvorbed by it with a great increase of inflamma ble Spiret, but if Spirite of Wine mix'do with vix parts of tater bevet wide for vomo time in a colo place, you will wee Drops of Oil vinming on the Superficien like Oil of Oliver; Phlogirles midd with Earth by the Modiation of asalt makes Oil, Sat, Mueus & Kevins; It makes a Cohesion of the Sachi relev of Jorra alba; gultimate larth, it alcalizer Salts and changer them variously; with Regard to its kiniting the watth Boerhame has a pretty Experiment, he takes the broadcafof attgetablerand puts it upon & red hot from; the parts quickly separate, the Water is defripated the Phlogiston burns away I the Tibres remain upon the Fron exactly in the hape of the Leaf, this then is the Verra alba which upon the least moti con of the Air is blown away; It likewise in ouces Steat and its various Afects, for Oils have a different & Heet from that of relaxing, which is that of envelaping the Salte, and we Find upon Blood lething a Person cools, because the rediffer abules are taken away which contain the greatest Quantity of Phlogiston

Lecture 2: Of the Tibres, Ligament, Thembranes What? Having in the former Secture considered the Unimal Fru tum as an Hydraulie Engine, the great Outery being the main foring this which the Blood is conveyed into other arterior and distributed to all the Parts of the Body, I now come to consider the several farts whereof the Body is compoud; The first are the similar Burts calle Tibres, which being Differently woven and connected together form Ligaments & membranes, of which are made up the Arteries, Veins Lym sphalies and Nerves, there too compose the Sat, the Glands, muscles fartilages and Bones, The foremany Theres are imperceptable coven by the finest Meeroscopes, upon which decount we are obliged to invent a My pothe fir to prove the Shucture of the Tibres: Every Tibres mean in grafe is made up of Segments ofwor lones received one into another lehe some perspective Glafers, only with this Dit forence that in the primary Fibres every Segment is of equals Diameter, and we have the greatest Reason to believe themto becylindrical since under that Form they can the most cast Symove one upon another: Rid. Fig. 1: & 2: It is the common Openion that all the Tiber have a Springine for, Elastity or Overlation as vone call it: But I shall presently there you that some an imab Tibros are perfectly inclustic as wallas

others are perfectly clashe. In all there is a tie thestitutiva but this is quite different from Elasticity, being nathing more than a Bover to contract themselves to their former naturals

State when they are whetched out, for hywhetching a Therenor thing more in done than leftening the Diameter, which the very Uluic contains therein merely by its own Force restores and to its former Dimensions, and the Length of Time taken up to

effect this proves it to be included!

Ourshion is commonly believed to be effected by the Bloods being stocked with nutritive Particles and that the Thes are lengthend by the Addition of some of these Particles applied to their Ends; but the is intirely inconsistent with the wells being of the Arimal; for then one part of a Tibre would re main in its pristing weak State, whilst that new added in be strong fiving a free of fat Gut to the End of small Twine is be much the name thing; but the olders we grow every part he scomes more solid and compact; and the lave is really thus, all the growing Parts have their Sibres clongated by the Hinds pushed thro them; you wer that in the white Spots of the Mails which are commonly called lifts, their first appearances is at the hoot near the Shin, in a short himethy appears in the mid de of the Nail, and every Day heeps moving as the contained Having force them along tile at last they arrive at the End and are cut of the the Sporth of Farts is not by the addition but by the Sucception of Vanticles:

When the Huids are in a die State and there is no prater natural fleristence, the Silved have an Up Firede to the fran, but if the Fluids are grafe and can't papethrough the Silved, they will grow flat and have a greater Degree of Contact, but that they may vie pover one and there the more casely, a time as is appointed them to lodge upon, they is seen by to ying a time

brane

because of the hardend Mucus which united the Theory lage sheet, but if it be washed in So of Leve it Colour will be change and the Mucus will be de polled, when the These are casely separated. This Mucus or Interstecial This with Courselow at least theelest of many Defeases expecially, postilential whole the whole the of the many Defeases of precially, postilential whole the whole the love of the Creeket, for this Much does not go in the Progressive Course of the Creeket, for this Wind does not for the receive from took or their live here; for if the this profiled were finite of the whole would doorer be corrupted

The Consolidation of a Hounded part being made by a Gluten is the common Opinion but erroneous: In the ordinary apple cations to Wounds and theers we find that oily medicines make a Jungus, and Styptiches ahollow Ceatrice, but overy Ceatrice in vaveular as is proud by Injection from whence I conclude the Elongation of the Tibres is the hue lause of Convoledation a Beggar having made his Legs and Thigh raw by to listers but them clove one to another to make them grow together which answerd accordingly, but being afterwards hand day hicking he woon separated them again; Doubtle for you that have made Physich your Surdy have read what Friend has Said with so much Noise and tomp about during wishing the real Defference behinst a Brikneumony and Mourty & how taken a great deal of lains to prove that the teriprouma ony must be that which is afferded with a Spitting of Blood, and that the Heurisy never is, but it frequently happens that

the Steer a being inflamed united to the Lungs by the Plongation of the Siber and then the Spitting Blood may early attend and fammation of the Heura, this adhesion is very common and attended with no bad famoqueness, because as the Thorax divides so do the Lungs; intought indeed it may occavion houst vame Stitches the Belchier the Surgeon made avery pretty as speriment upon ayoung lock, he cut offene of his Jours and a premient upon a young lock, he cut offene of his Jours and a premient whom then fartend the Spur to the lond remaining on his Stead, which you afterwards about half an Inch which would not have been had not the Tibres of the one who tento those of the other

Monghing who has applied Mechanichs so much to Mywich thought all the Fibres were versueld: Beech and so after that all the Fibres were propagated from the Brain and so after qually nervous: that we find by Experience that this does not hot true, the dungs for wample are so constituted that Inflammations in them givelittle or no tain, and the tomica pulmonalis is searce preciseed by any Satire; I conclude therefore that Sontially is from a proper Proportion of nervous Fibres are seconny to the Ufer that the Parts are destind to perform, that agrass with that Apportune of the processes that their fees and Inflammations of the Japor in of the process at that their fees and Inflammations of the Japor is more dangerous than the inful;

The perfect Inelastic Sigaments are the Tendons of thus clas, which serve to fix them and give them greater Strongth Muchos in their Setion contract one there of their Longth, which is to

be understood of their fleshy part only, and if the Tendons were dastic; the Muscles could have no Power to act at all . Whichols fix'd a Tendon to a gradated Instrument with a Screw upon furn zing ofwhich the Tendon voon broke; of this Substance are the Ligaments of the thist, Jarfus, Sternum, Ligamentum Pouparti, the Dura Mater and middle Membrane of the Bricardium; the most inclastic have the most glipening Clow approaching to that of Silver; throw it into boiling Water it immediately shrinks up loofes its bright (glow and becomes elastic; the middle fourt of the Diaphragm is a perfect inelastic Tenden but the last of the Vina lava arifing directly out of it, are very elastic, losing that glifwining Clows, but are both the same Substance the thus degenera The Inelastic Sigaments degenerated are of a more yellowlo lour, like that which the other acquires from boiling trater of this Soil are the Sonds Musculi supraspinati, the Spoule of some of the Sounds, the Tendinous Farcin of the abomen, Ligamente of the Os Pubis, Os Sacrum, and those between the Fertilities, for these Parts want Shength but yet require the Sigaments should be capable of giving way: These two Substances ought careful ely to be distinguished and Observation should be made of the Schnation of each: In Blood letting, if the Tendon of the Buefor happens to be priched being melastic, and the Constitution bad you are almost were of athortification, but if the Fascie which proceed from that Tendon are only cut by the Lancet, a Vester happens but nothing more; and in Tapping anther Tasera of the Absomen are of the Inleastic Siebstance vo mewhat dege

nerates, it is retoom any decident attends. The knowing the Situation of these Ligament is likewase of great the in the Other of Diseases, those of a malignant kind attack with immediate fame of the Wack which running downwards follow the Course of this Substance on the On kides of the Thighs and age to cause the Plands here are so aft to mortify and tark of the same Specture are stable to the same Occident and Sneones

The Elashe Ligament perfectly so is of a whitish yellow Colore its Tiber are long tudenally strong, but laterally weak; it excess no alleration by borling but life long continued, mether does it change by Maceration in Spilet of thine. It is most remarkable in a fooder thing, being the Tener of a truscle it runs from the Leapula; it will stretch three times its Longth, so wing to extend the thing in flying; the digmentum Colli in Brute the curved digaments between the britisher of time and the modele Coat of the Arteries of all an imals, are of this kind; the latter by Mistake have been called muscular). Its the in Obseure motions is to domit the Bones to move one upon another in other parts to admit the Bones to move one upon another in

Membranes are broad contextured of Fibres interwoven to one another somewhat like loth, of which there are two sper reces, the connecting & Containing, of the former dort is the retiender of the land one to another which has been falsely ascribed to the cellular or aripowed the whole has been falsely ascribed to the cellular or aripowed to whance; their Difference convists in they that the reticular his almost dishibuted into all farts, but the Collular is not; the

Shin of the Penis is connected to the Penis by the reticular Subestance where there is none of the adipose; but the they accome spany one another in most places, the latter is to be distinguis which from the former as having distinct fells like Grapes, where as the other all communicate one with another, as the But chers show us by blowing up their Shoulders of Keal. The loneveniency of this kind of Arustures is that you draw the farts any way without lacerating the Fibres, so its live is that they may be the more easily Sheloho in performing their office: algentleman at the Crisis of a Tever had an absect fixed under the axila and pectoral Musele, this Substance was the Seat of it, as it is of all absections; this being opened & the matter discharge it heal's up again without any great difficulty, but he could not lift his arm to his Head because a Part of the res ticular Substances was destroyd, but by Degrees the Fibres were clongated, that was renewed together with the perfect The ofthe Orm: In Tichela's the you have a depending Orifice in one place, the Matter having made its Hay by means of this Subwhance, the Sinus shall become curved like an obluse Ungle so that the Orifice A will be able to evacuate the Matter between that and B but that lody d () in C will remain behind; for which theas on the present Practice in to cut the whole entirely out, the Part then requiring only to be incarned the lyre becomes easy The Containing thembrane is intended to contain fluids it have different Names according to the different Sibres whereof

they are composit; when they are chiefly such as the Ligament are made up of they are called ligamental membranes, if of. muscular Fibres, their hame answers to that, if there be a great many Blood topsels they are calls vascular, if the Fir bres be for the most part nervous, then they are nervous membranes; Unatomich have called a great many Mem. branes nervous, but there are none except the Eye which is said to be an Expansion of the Optie Nove, the that in tobe questiond: If many little Glands are spread about the Mem brane as in one of those of the Intertines, it is call a glander clar Membrane; When the Blood topols make a fine file like belock then we call it avillore Membrane of this Soit in the inner Cat of the Intertines: Anatomy formerly chief ely consisted in separating the Samina Membronarum, some making them double others hiple, and another would have the very vame to be quadruple, but we shant spend any time about that Matters, but consider the Ufer of those Samina. In containing Membranes the Interestices of one Saminas are placed directly against the Saminations of another and vo on throughout all the rest, that the Mombranes may be able) to hee to the Ruise from getting thro them: In the Defrection of a Schierner I found this Vider quite change, which caused the Place to stagnate; for in the Obstruction of the Blood the containing Membranes are shetche, the Laminahous are displaced which according to the Heat of the Constitution oceasion Schirufes, ademais & Jat

Lat when newed by the tructor cope appears to be made up of fine Arteries beset with little to ladders of Oil; Its Situation is between the Shin and Muscles, and likewise between the Mus. clos themselves; Boerhaave says it is spread all over the Body and makes it the Seat of the Gonorshow, which in fax from being hue, the Penis having no Fot at all : Itis an homo. geneous Substance mixds with many ligamentous Tibres, the Sovem is more simple being waste up in com mon frems France; but the theoulla has nothing but an artery to nowish atom to return its Blood waft up in less membranes. Oil as I have before Said is mades up of Earth, died, Hater and Mogiston, Its use in the Body is torelax and lubricate the Topicale and in the Blood to envelope the Salle, we experience the good Hechs of it by giving Oily Draughts in Fevers which take of the Sension and Pain; Salt Oil and Hater make Mucus which we have reason to think is generated by the Salls is are greatly attenuated in Fovers being united to the Oil exhibited. The live of the Oil in the levicale The iposa whihewire to heef the Body warm and give an equable Julne to the Parts, for no Parts of the Body retain Acatso much as Oil, itemakes the Motions of the Muscles easy, acting like a relaxing con mentation upon them In the Covines of the Body ithas also " vame User, the Ridneys lie upon a great Bed of it, whereby they are defended from the arrang of the Urine which otherwise would occasion dangerous Inflammations, it even enters the Body of the Kidney and accompanies the Uneters to the Blos Tecture 3. of the Arteries, Viens and Lymphatichs.

In defecting of Bodies, the Ancients observed two hinds of telvels, the one full of Blood which they call Fins, and others emply to which they gove the Name of Arteries, imagining they contained nothing but Air which was driven from the Stear to ventilate the tolood and to expel the full Thore are in the Body properly speaking but two arteries genous Vapours\_ the one call Pulmonary arises from the right tentricle of the Heart and is distributed thro all the Substance of the Lunge, the other is called the Corta Gruns thro all the pl of the Rody taking its time from the left tintrice; the other arteries are only Ramifications of this, which convey the Blood from larger to smaller till itarrives at those is are too small to bomit the red Globules, but such as are of the most Degree in Bignete, and so on till they come to the pri-

The Form of one of these main Arteries, taking the Uggregate of all its Branches together, the areas I mean of all the
ramped arteries is correal, with its apectowards the
Acart and Bafis towards the totrom thes; Insuppose
in Fig & pag of the area of the artery at A to be to, that
at B to be of that at C 8; Band C being added to gether
make 15 which Sumbering greater than the Wea at A the
Bafis must be farthest from the Heart; but if you pursue
the Atory in one single Branch only the Bafis than be-

comes nighout the Seart and the Apex at the Extremity, & thus Physician's have been led into great Mistakes by consis Dering the Blood as moving only in one wingle Branch it may be asho what the Maper of an artery is between Branch and Branch, whether conicabor Cylindrical? It has hitherto been considered as the Segment of a long lone, but it is very difficult to measure it, because its Branches are so thick : The Gentlemen of the academy at Florence have been gratty desir eved, for obverving the great artery of the Which to run out of Inches without giving off a Branch, considered ihas a Segment of a long lone; but in that very space ilgues off as great many imperceptible Branches for its don Nourish ment as do all the rast; The most convenient Form is that of Cylindrical and therefore we have sufficient heason to be slieve it to be so, and the Truth of it I think will appear very plann; If an artery was to run along conically as is out post with its Bafix low and the Heart, at its finer hamifications itrovald admit some Particles of Blood into them which costs not get thro them, for the Diameter of each Branch growing le foer and le free, Such Globules having enterd & being pilit d along by others would at last be roed go in, so that from this Muchan there would neceparily happen dangerous when Obstructions; nay we may afferm the animal couls not possibly subsist; but if the Unteries are cylindrical this con never happen, for suppose a Particle moving in a small aste my and whould happen in Dilatation to get into a Branch loo small to admit it to pop the of it would immediately upon the treaction of the topel be pushed out again . Lewenhooch acci. Sontally meeting with a that almost expiring with Cla up on viewing it thing with a thieroscope, found a tarticle of tolood got into allfuel which it could not pape thro be tupon the ortraction of the Alery it return of back:

There are some On teries called Capillary, by which Term we should think they were distinguished from the lest, and it may be meant by it that they are the last which convey the mixed Map of Blood; but no artery can be thus determind, for under different Circumstances, one and the same Ortery may carry both mix & Blood and Lymph at different times; He was in the White of the lye, when it is inflamed, the topolo are overcharge with Blood, which were by Nature destind only to convey Lymph; the vame happens even in a State of Health for we were a ferson of apale Complexion, this the takion of hame will blush; vome grow red with anger, others turn pale; and all this is because the Lymphatiches in the former lafes ad mitted the red Globules, and in the last the teles appointed to convey the red blood were so constring that Lymph only ed. be thrown into them and by this it appears too that the body is something more than a merer by draulie Engine, since the Papions dowork upon it as to make its Tubes convey one while a grof Fluid, another while a fine one only! The proper Juniche of an artery are first, the internal, which

is a fine smooth membrane make their which when the altery went open appears a little winhled; the meddle one is ligamon . dows and clastic this is what has been called the Muscular Cat, but it is matter of the greatest Surprize to me, that any man who has seen muscular Fibres should think this to be composed of such: The External Junich is vascular and elastic, with this Difference from the middle one, that that is strong longitudinally, but the external one is strong equally in every Direction; but besides these there is a common con eneeting one being reticular and united to an adipose Sub. whance; Nerves accompany the arteries in all their hamis fications to give their a dues Consibility. The Situation of the Arteries is always within the Angles of Florure; Hatme having always taken face in their Distribution that they should never besketche, sometimes it is necessary they the pape over a Soint as is the love of the crural Ortery, but then They always do it by creeping round to get behind, like Honds up of Meep Hills:

An Untery is an elastic Tube capables of being distribed; there are two the how of it call Diastole aholy stole; the first a the Dilatation of the attery by the tolood being thrown into it from the Heart, the likewise is call the there, of the various Sorts have been observed; tillus magnus is when a great duantity of tolood in the own out of the Beart at once into the Ostery; Parrus is when a small cannity of tolood in thrown from the Seart at once into the Ostery;

is but little dilated, not depending on the Quantity of Blood in the Artery; of hin to this is the Pulsus suppression and difficult to be distinguist's, but we often find where the Pulse is very low, and scarce perceptible that after Blood letting, it rifes very much: When the Heart contracts clowly, you have the helper lardus, and when quick the Color and Frequent, which you are ready to ima gine are both the same; but they are to be distinguisted these, " Heart may contract with great belocity, and the Systole of the Artery be long, this will make a Filour celer but not frequent. When the Acart contracts forcibly and throws out a great Quanthy of klood at once you have the fuluw fortie, the Debilis is quite the contrary; Pulper duries is when the Coals of the artery nextense and Mil, Mollis depends on a lax State, when the Blood seems to have a hind of vermicular Motion; so that the first two Jord of Pulses correspond to the Quantity of blood, the next four to the Systole of the Heart, and the last to the greater or lefs Jonwion of the Arteries: The use of the Dilatation of the Otheries is to dishibute the Blood to all the Parks of the Body, and to make them contract: It may here be asked whether, some Construction of the Papillaries be necessary for the Dilatation of the Heart? accord ing to the general Opinion it is, but then they take it for granted 4 the form of the Arteries from Branch to Branch is conical, but were that the lave there could be no Pulse at all; for there must necessarilybe a continual Impingement against the Sides of the Velsels and consequently attendrance from their contracting, & then there would be no Resistance to the Bloods Motion, but it would flow derectly in its Channel thro the acteries without any

Auton into the Veine So that in the whole Course of the Crew lation, the Dilatation of the Arteries and their the vistance must always be equal and always applied when the Heart delates, but remitted when it contrack, or else the Blood could not be prefeed out into the Veine: — This is confirmed tog some Phan omena in Defeaves in the coming on of a Mostification, you will find no Pulse, and yet the Circulation is continued without any Tout in the Shuchure: Many in good Health observer a want of Poles sometimes in the left; which can be owing to nothing but the tresistance being remitted by with

Means the Blood paper quite thro unresisted:

The Systole of the Heart is its Contraction, which has been wholly attributed to the clastic Power of the Arteries; but this does not do it alone, there is a Stimulus likewise, and this Stimulus is the proper action of the anima: Suppose aferson has a Chronical Dis temper where the Action of the topsels is weak, upon taking aromatiche his Pulse grows strong, which proceeds from the Blood being now impregnated with the aromatich Particles which give a quater timula to the Arterias; the bare clasticity of the ar feries would not be sufficient to propel the Blood, which is plainly provo by trying to inject a dead Body, where granting that to be true the (irculation might eavily be renew'd; if the love of the Heart was always to be and to continue equal to the Her is stance of the Sefeels the Unimal would never die: But if that Jone be weaker as suppose 10 and the Besistance of the tepels 30, something must necessarily bo added to the Heart to overcome that Revistance The

The Trequency of the Palse is cometimes 50, sometimes 1.40, in atminute; the medium is between bo and 80 which is the most healthy State; It has been question's whether all the Branches ore fills at one and the same time, if you examine your Pulse at the larpus and apply other Tingers to the temporal artery at the vame time; you fine the Pulsations exactly correspond to one another; we must consider an artery as an elastic Subell as equally built; inhich makes in every Degree of Delatation a proportion able Degree of Heristance: If you blow into a Gut or pour Water into it when full, you will see the remotest part of it move at the Instant the nearest does, for in a full Tube not one Particle of the contain Pluid can mover upon being im spelled till it has communicated the vame Quantity of thotion it received to those immediately configuous: If the to feels were not equally full, the Mesistance of different parts would be une q, and the Clasticity of the topiels would conduct the Sluide where there is the least Resistance; from whence the Distribution of the Blood would be consequently partial: But this is contradicted by daily Experience, an Instance of it we have in young this Doren, for if any one be made to takera Hint of thill, it will be taken up and mixed with the Blood, be no where extravavated, but equally distributed into all the Parts of the Body; and the South ofit appears necessary from the first Consideration, that the Blood might be distributed equally mist and the Flued profell with y greater belocity: The Use of the Systole is to delate the right Own acle and to propel the Hurd throughout all the Her to of the Body

The arteries have been observed in going to certain Parts to be strange by convoluted as those which go to the Testiles, the Use commonly aforgand to it is to retard the Motion of the Blood; for observing the Semen to be aviscous Substance, they say it is necessary the Orr teries should have this Form, that the Particles of the Pluids may have time to attract one another in order to constitute such a Substance; the vame Reason is given by them for the lone wolution of the Splanick artery for the Formation of the Bile; but the Falsity of this he avoning will soon appears; the Motion of the Blood will never beretarded by the Convolution of an artery be -cause it is equally built throughout and being always falls and emp hed throughout the whole at the vame time, there is no Encrease of the Resistance of any part; the Design of Nature is here to have a great Length of Astery, that there may be Room for the Rise of a great many Lymphatiches, which by carrying of the Lymph might leave the Blood in a proper Disposition to secrete such a Eluid as the Semen; but ariving so very near the Testicles, from the Imulgents they must be convoluted, on this so nece pary a Raparation could not have been effected; In the Splenick attery the lase is the vame besides which there veems to be another Intention, for the Caliar artery run; ring from the Stomach, Sonds off one Branch to the Duodenum and another to the Spleen which last runs all along upon the Side of the Stomach, so that when the Stomach in fill this artery is directly sheight though it be convoluted when it is empty, so that this Convolution veems intended principally that it's Length might be commers water to the greatest Length betwint the Somach and Spleen, which is when the former is full, and this is agreable to all other Precautions of Nature against stretching the Siteries. In those which yo to the Bram there are very great (apostutions, both in the large of the common Opinion to prevent the Bloods rushing too widently upon the Brannot but according to what has been already said the Suchure cannot have this Effect; but as the Stead must necessarily however arious Motions according as Objects are differently applied to the Sonfes so it was necessary the Arteries should be thus convolution to prevent their being steetet of but how great are these convolution to prevent their being steetet of but how great are these convolutions in the Canium and Os to Troum, that no live unstances or tretient of the Sand might obstruct the lowers of the Blood there so me were these Convolutions are nothing exercised, but morely accin

In diverse parks of the Body the Aleries howe Communications one with another, they is what we call their Anaskments or who over with another, they is what we call their Anaskments or who we will the Anaskment of the Interior of the Interior of the Propeys do not inosculate though the Seins do; These Inosculations of the Floor, and are admirably well contrived in the Author of the Blood, and are admirably well contrived in the Gate of the Blood, and are admirably well contrived in the last of the Some of mathematics of the Blood, and are admirably well contrived in the last of the Some of mathematics with their due Quantity of Blood; This Inosculation is very plain too in the Fand it winds likewise be frequently substituted with their due Quantity of Blood; This Inosculation is very plain too in the Fand it winds likewise lie under the same inconveniences with the link by our frequent handing types from the Bodies were it not for this wonderful log trivance, the also observe it in the Brain if

if one part of it happens to be compre to, the whole may not be inju zeed; and it not only serves to keep up an equable Distribution of the Blood, But likewise to preserve it belocity, for the more an artery zas emifies, the more Space the Blood runs over, and by that Means lope its relocity, but this Contrivance lessens the Herristance to the Bloods Motion, and the Blood oftwo Orteries impelling one another move thence with a greater Velocity, it likewise contributes to preverve the due mixture of the Blood. The find with texpect to their Form may be considered as Ohr steries, & are those tofices which return the grofs Blood to the right Auricle, the whole taken together are conical with their Bafis tow the Shemities, and Apos low ard the Heart, but if we consider 4 motion of the Blood in one Branch only it is vice versa; they like zwise are extindrical between Branch and Branch and recompos rny the arteries in some parts, but in others run at a great Distance from them, the former Disposition is seen in the Veins and Arteries of the Somach and the latter in the Hand, the towns run ening on the back of it, but the arteries in the Balm As the teins are intended only for fraductory hannels to carry 4 Grof Blood from the arteries to the Heart, their Cals are thin and all together have some Elasticity in them, the internal one is a fine membrane, next that is the containing Coat, and over that a vascular one; there are the proper loak, besides in is the common connecting one, internally reticulated and adipore; It was necepary the proper leads all together should have some Claricity, that the teins might be adapted to the accidental necess on Decrease of Blood, you have sen the Fendinous inclassich Suls

Substance of the Diaphragm, sending out Fibres to form one loat of the tena lava becoming then clastic, this was to demonstrate to you the Degeneracy of the inelastic Ligament, so likewise an artery runs to the tenalara and forms its vascular loat. In Veine which are placed perpendicular to the Horizon there are many Membranes call talves, so dispos & that when the Blood is got theo them, from their being immediately cloud it is hindered from returning back, and it Gravity serves to shut them the closer; in some Places these talves are double in others single; Nature seems to have spent no more Matter upon the line than was necessary to contain the Fluids, their tressurer being always perpendicular to their Height, these talves set up at proper Distances prevents the Blood forming Varices, which otherwise would frequently and unavoidably have happen'd. The terns have their Inoxculations and that for the same furspose as the arteries - Is the Motion of the Blood in the Soins per Salhes, or does it run in one continue Sheam? I answer, per Saltus, for otherwise the talves would be of no Use; for if the Blood ran in one continud Stream the talves would never be Lovd: It is commonly vaid that the Blood is pushed along in the hims at the same time that the artery is delated, but this cannot be; for the right Show Artery directly in it Course cof sevover the left Stice tien & that runs immediately upon the Spina Dorse, which can't popully give Way, the Consequence of this must be that when the Stine Octory is dilated, the Sides of the tern will be prefit clove logether, and the Blood necessarily

stoppe; and as the Motion of the blood here in the teen must be when the Untay we contracted, we may justly conclude it is the same in all the other parts

The Proportion of the Veins to the arteries in their Diameter is as 2 10 1 in their area therefore as 4 10 1; but this is variable in difficent parts and State of the Body, sometimes the Blood will be greatly accumulated in the teins, as ine Nurses that are obliged To vet up manye right whose Legy are frequently varicous: The teins are likewise greatly affected by Head and (ats, as in a warm Room or Almosphere they will be very much swells, but in the lots will presently collapse, the Quantity of the to lood in the Body is also to be considered with Regard to this Reportion-The Symphatich System consists of arterial and venal lefe wels; the arteries taken singly are too fine to be examind, but are seen in a bundle as in the Humours of the Eye; but in the Ires are so coarse as to be visible vingly, two arteries commy hither divide themselves into Branches and send off the sed ym sphatiche to vecreto the aqueous Aumour - These alateries have no Systole and Diastole as the sanguiferous have, but as all the Orteries are full, at every Pulsation the Fluids in the Symphaticher are pushed on by the others; They have however a Tonich Motion, by Means of which they receive more or les Fluid from the Vanguiferous: Un Epileptick shall come to you with a full Pulse, which indicates attecefiny of bleeding him, this you do to 10 or 12 Ounces, the tiles then falls a little, next Day he comes again with a false as full as before; you blood him

again, and absence his Blood to be a little more watery, the false sinks now, and recovers its former Julness the next ay, the Blood extracted this time will be more watery; this Julne to of the Pulse will be renewed the you repeat Bleeding ver times and add nothing to balance the Substraction of the Blood, the Case veems to be this, the first Lymphatick to feels will not as mit a Supply from the Blood, by reason of a spasmodich Price herer upon them, the arterial Evenal Lystem will file then from the ordinary Quantity of Sustenance only; the Heart will have it proper Shength and the Blood its due tolocity; but remove the Spicture; the brealation in the Lymphatichs will be restored and the Julse will fall; which is another Proof that the animabis something more than a mere hydraulie Engine; Such allerate sons as these being quite irregular and dependant entirely on our Papions, on the (hange of the almosphere), our Diet and ma my other Seedents: In Forers this same Shicture happens or is made by Nature; who shuks up the Lymphatiches to encrease the Quantity of the Untereal Philos, as appears by the Diminu. then of all the Secretions, Dryne for of the Thin, little Uning alive. Out of the proper Lymphatiches are formed finer, from them while fineratile at last we come to the farmary Sibres, thro all which Lymph of a suitable Fineness in conveyo; and in every Order of the arteries, the teins correspond with them, which from thence uniter and form larger Trunks; they are composed of an extreme then Membrane \$ to prevent the perpendicular Referre of the Huids from bursting them, a more than ordinary (are seems to have

have been taken to stock them with talves which are here perhaps ton times as thick as in the Kenal topsels, they are like wive much thicker and look like a Shing of Beads is blown up; this is a lizeumstance looked upon by Ruysch to be of such great (onveguence) that he wrote a whole Treative upon it. The Lacteal toficels and Lymphatick teins are formed like the sangus iferous, out of the arteries and accompany them in all Parts. In the the ventery the Lymphatich blacte ab topsels are the same, be only larger Lymphatiches; -With Regard to their lese they are vaid to secrete a Hired to de · luter the Phyle; but what can be their Use where the Phylesis not. the Lymph cannot want to be deluted, but we must think their Me to be the same in all parts wherever they are found, the Lymph itself is exceedingly thin, from whence it veems neces wary a Hurd should be secreted to thicken it, or else it would be aft to handuse thre its leins; I Blumber has a feeted that the

the of the Thymus is to secrete a Fluid to thicken those of the Ta this, lest a Fransudation should happen this its fine tender lasts of the tefoels:

What space of time is requisite for the Hevolution of the Blood that is, how long and how many Pelsations are required for a single Particle going from the Heart before it will return to the right Quricle? This is a Question which has so many forcum estances attending it and they so variable that it is impossible to determine it with any Certainty; the nearest way of coming to Probability is by considering that the area of the term is to that

of the Artices as A to 1, the Humberrof Pulsations then required in the Languigerous System in five, but we must likewise take in the Lymphatick System, which is so condiderable that from the Appearance of those refuels to the others we may compute them to be as to to t; for the Lymph makes up one half of the Fluids of the Body, so according to this Computation it will require of Pulsations to drive one Particle from y the art into it again; but this will be greatly varied by the Refusion Utmosphere be in some parts too the Blood will move slower than in others, as in going from the Mesonlery to the

Persons may be in Health under a different Quantity of Plus, this is called the Satisfus Sanitatios: On uninterrupted Line of Huids from the Extremities to the Heart is what constitutes the Latitudo lite; the tein's adapt themselves to an odecrease Quantity of Fluido which shows they have some Degree of Clawhich and likewise a Tension; it surpriging tover with how small a La antity of Hurds an Unimal may live, I've seen a Gody opened where it appears it last Stage of Life was supported with lefthan a Kint : It often happens in opening large Obecelves upon the Evacuation of the Matter the Patient falls into a Deliquium and vometimes dies, this does not happen from the Lofe of Thirds, but that the extravarated matter being belout, that Vension is removed from the teiner which the Matter by its Armulus hept up : In alleronical. Depare; the Patient shall on a Suden have a large tracua

than by Stool, fall into a Deliquium and die; not by the Lope of Oliver, but for the vame heaven as was before given Hoff rman wroter a Freative concerning the exect to there in acuto Difeaver to prove it Danger; and in Levers where there have been agread Diminution of the Sticos, and a general daxing bought upon the topole, a known being to hen up to an erect for hure) will be aforto fall into a Deliquium to the grate Danger of his diff; for the Huido by their own thing the will gravitate and with great Difficulty be protouded to the other of the

Secture 11. Ofthe Nerves, Glands, and Muscles.

The Newer are a fart of the Unimal upon which the most lean give you are probable Conjectures; the Mincients of serving a Likenofs of the Appearance of the Vendens and Newer confounded the one with the other, and indeed their

(clour externally is very much a like)

The Nerves are something like long (Horde un hired a continued from the Some or in to every part of the Body, when the larger were there is and at last, of nerven Silaments umaller and smaller till perhaps you come at the primary Tibres; and at last, of nervens His mant of umaller and smaller till perhaps you come at the primary Tibres; and so far in That when they become the Organs of lower that when they become they are gent waid to have how continued to be discound; they are gent waid to have how Coak, and external combaid of the One last the Sia thater from the Dura Mater, and the internal one fam the Sia Mater.

the former infound in every Nerve except the ancitory, and the latter in inside in the Octochronely; here, we may account for one species of Blandness called Gutter Serona, for the Dura the hat al Cat being inelastick cannot give way to the the fourer from the folia matral one, so that whenever the lat terhappens to be overchary a with Blood, for it is well which with Blood to field, it must compress internally upon the thereof and thereby out off the Communication between the Column in Broportion as the Pressure is greater or left;

All the Nerver have their Origin from the Medulla Obloro regate and it made Marrow, and are distributed with the Original America in the Woody; in divers back, the Nerved are observed to form Inglia, something in Appearance like the Anastamofic of Blood to bold; that these Ganglia can have no Communication with the thrower, since it is needwary to distinct Sensation, that every thinad whould go distinct from every part to the Wain, we do not know enough of the Norvel to vay what the Use of the effort reflection in the start of the Start was a file of the Norvel of the Start the Use of the Spanning in the start of the Star

It is amazing that the whole foundle of there at their Origin and Egrefs from the Brain be a proab that marrow taken together does not exceed the Biggets of one's 5 Tingers & yet there is not one wint in any part of the Bady but what with be painful by as trick of the friest New to, this where with be painful by as trick of the friest New to, this where the great Divisibility of matter which this or place bring many toper ments to know for a small Turn till, of matters may

may be so divided us to fell any Quantity offinite space; so that the Interstices of any two Particles shall not bevuffice to admit a Line between them; the Nerves therefores upon the extreme parts are inconceivably small, and must per wader our Senfes and all artificial Holpe in tracing them thither; about the latter Part of the last Uge, authors were greatly taken up about the Terminations of the Nerves, o perting the optich Nerverterm in aled in the Retina and those which run to the Ahm in the Capilla , but what I ve just new mentione makes it appear abourd to suppose soil

canfind them

It has been halo as an Opinion that there Nerves are every where vervible; I mean that every part of the Merve to so, but I think it is evident they are sensible only at their a spices; for here on the lide of the Finger runs a large house close to and along with the artery, so that was this nevel every where vertible every Pulsation of the artery mustbe fell by it; the like Distribution of a Herve and artery is ob wervable in the arm, wheresthere is so in mediate a londait, that upon the Supposition before mentioned we must be venwill of the Sulvation every time the artery delated . There is another Instance of it in the optich Herve, an artery pate with it from the Senvorium thro a Perforation of the Shull, title it comes to the Retina why should not this artery everytime it beats give us the Sensation of Light and Colours? Offer a Legis cut off, there is always a Sensation as if it were while on,

the Fruthis, after this Operation fresh Opices are exposed, and the Stabita equired by the long Action of the Leg does not easily go off but when a licatrix is confirmed to shield the Opices this Sensation vanishes.

The Use of the Norves is to govern the Secretion of the Huids and to vary them; for consation and muscular motion; the la culation could not be carried on without them, for the atteries could not delate as I before said without the nervous Shicture which heaps up the due Besistance between the Solids and Fluids, thear a opofs mistake to imagine the Force of the aleteries to be muscular, since there are no muscular Fibres; besides there often happens as them itance of this thesistance sometimes in one place; sometimes in a nother, since werses from the fariabi. elity of the Capillary arteries, that the Med Blood shall at one Time be admitted at another excluded: The Secretions are variced by then Nerves both in Quality and Quantity, being sent to ver Glands in large ( Flexusi, which can't be for their den. wation since that of the Ridneys where they abound is far from being acute: People of great Spirits are very aft to be flatter dupon the sudden Steport of some very bad Herry, Swile presently discharge a great Quantity of limbir Urine, the lonecen does not affect the Fluids on Solos immediately, but the Nerves as tapions; the intermission of the Pulse in Mor difications is only owing to the nervous Shieture being one while applied another time remitted; alerson likewise upon asudden Surprize whall feel a great Oppre foron about the fit of the Stomach and some even die thro Except of day or Grief:

Who can attribute this to mere Mechanism. It is plain the lines. lation is governed and altered pro re nata by something within us. There are two Sorts of Senvation which I call the Consein Win consein, the latter may seem a Faradox, but it is manifested by its Effects; The anima which is the governing Principle, sets upnew Motions as Occasion regulars pro Valute animalis, when comething is required to be done which is out of its, then it appears most visible, as I shall explain prevently: Inthe igines, the there be a correcting Cower to regulate some of their motions, as in Watch where the Chain unwinding from a Sort of Cope it's Power encreases and would move too fast was not the Spring to uniound at the vame time, which becomes a Balance to it, I vay though these are ever so well contind to answer these Surpofes, yet me chan is m cannot perceive, judge and act pro w nata, his Sensatio inconsera which does this . In the Anoma there is an Anxiety which may be applied to both Sonsa shows, as we may observe with little altention; there is somethe in some Defeases, a Sensation, not properly Pain, & which hople who labour under it will suffer great Sain to getrid of; some few there are that are not able to bear it Conscia is something werfeel in Suffication: Some People have suffer Death before fure, butwee have a Law in Ingland to enforce Confession, by prefering the Body with Highh, adding thereto as there is Oct reasion; none have ever been able to go thro with it, but have woon been bes to confels: Boorhanve observing Difeases found that where this convious Sens ation, was most most visible)

the Circulation was most obstructed, as in speat In flam mations where there is great Consion, as in the Liver so And in acute Dif seaves you will see a manifest Indication of the action of the anima, which we are no way conscious of for in these Diver eders there shall be an acute Pain, which sudsenly going off, the launtenance of the Patient immediately indicates his get Despair & anxiety: In the Beginning of Mortifications, People are observed to have a great Mitonely and Concern which when the Depart ofreads are most remarkable; they behave as if their whole attention was taken up; and in Gover they are very common, but as he the Patiente at the vame time how they do, they will answer immediately, very well; but then examine their Bulse you will fine it some times strong, sometimes wich and offen convaled; there are all arguments of a real Dospair in the Principle which governo the animal Oconomy: Is may be asked what Pain is? or what Groumstance there is in the Nerves which gives the Sensation of Pain; It has been falsely vaid to be a colution of Continuity, for it zather seems to preced that Solution, and the more so where there is a great Degree of it threatnes; where a Norve is quite cut thro there is no Pain at all, but the Pain vee me to be more or left according to 9

precese that Solution, and the more so where there is a great Degree of it three at ned; where a Nervisi quite cut this there is no Pain at all, but the Pain seems to be more or less according to 9 Degree of Cension: Stere is a large the gmon in my Hand with freat Inflammation, the least refere upon it gives me from adjoins their, now here is no Solution of Centimity but is highly threatned and the Tibes appear to be more tense than before; In those Country where the Sochre is made use of the unhappy

Sufferers are first wheteho then hurded, and at last cold tale is poure upon them, this is the greatest Degree of Pain they cam goodhem, those who survived to are taken down and formented withwarm (lether this I am told in the Practice), and this in to take off the great Consion from the Fibers:

I Sensation immediate or not? there seems to be some fime require to propagate it to the Sensorium, and for that theavon can't be immediately made; where fannon Balls do their Execution by taking off andeg, an arm be there is no tamschilot that is doing, it seems to be performe too quick for the Senvorinum to haver Notice ofit, the Sam which come son afterwards is upon another Principle for the supervening Inflammation brings a Tension upon the Fibres: the In preficon of onesen wation seems to continue some time after it is made, four furning round a Fire Sich there appears to be one continued Cicle of Fire , which is, the Sensation first imprefit is notice mitted before the Rotation is made: this Impression probably continued in Roportion to a tersons Sensibility, and so may all others, for some will see this firele when turn's round very slow D' Nichols contino a Machine for the Fine Sich to move in to give it differt Degrees of telocity, where by he could judge of the different Degree of Sensibility in different Brooms: Sensibility has been looks upon and poke of as involuntary towhich they magine us to be as it were only papive, butit does not veen so intirely; inoced when we apply our Notice to Objects, it is unavoidable as in looking, feeling be but this.

is with application, for it often happens that a Person whose Thoughts are deeply engaged whall come into a from where you are byet not know you are there, the in the midel of it, shall walk about, nay and if spoken to, shall even answerd yet not use you; all this is without any Defect in his denfes, butwere locked up by his Intervenife of Thought; by this we see Persons have a Command over their attention so as look verve but one thing at a time; and on this depends our gaining clear dear, for those whose thoughts are always Shifting from Object to Object can have none but confust unset the Notions; so that however papsive we may be when we prewent on apply ourselves to Objects, yet we have a fower of attend to this or to that only as it pleases us Therab Sypothe for have been advane & to account for the Moder Operandi of the Nerves; but as they are vo wonderfully devided and the Intercourse behove the Body and Mind so in hicale and mysterious, it is very difficult to account for it; We may indeed observe the Croumstances which attend it, and ve discern whether this or that account be false, but we can't speak of any as certain; for with hugard to tivion where they tell you the Rays of Light are reflected from the Points of Objects, that they fall upon the Cornea enter the Supil, are converged in the Cyptalline & vitreous Aumours and then stike the Setina where the Image is painted; all this does not explain to us if (ause of Kinon, but the Conditions only: Some have endeavoured to account for the Communication of Sens ation by the Undulate of a Huid, which according as it is made in differ Degrees, sayles

different Senvatione, supposing there are continued lanales & Those full of Huie; but if it were so, the Norves would beversible inlarge Bodies, the contrary of which I have already shown; 0= there attribute it to a hibration in the Nerver, to do which, they must suppose the Nerves to be always stretche like a thord, for they can't be thought to vibrate in a flaceis State; but if I bend my arm the thesternes were stretched when it was extended they must then become flaced; but I find if prich my Finger in it is in this bent Position it gives me the same Sensation as be fore; There is another Supposition not liable to so many Obspections, which is, that the Nerves have a Sower of contracting themselves, from the various Degrees of which areso the tariety oflewations; this is more probable than the other Hypothe fes, but do not impose it upon you as athing certain; this howe were we are sure of that allowing this Cower of Contraction, it may be exerted whether they are in a flored or extended States In Palvies some have their feeling, but have lost their Motion; thurs haven Motion but no feeling, yet the Nerver of such are exactly alike : Some have a different Degree of Sensibility from others which is either too acute oo loo languid as in Difeases, which proceeds from the different Disposition of the Body; In the Sourand der Seavans, we have an account of atrian whose Eye being greatly infland from attound, could ver any thing in the Hight when dark but coule not bear the Light either of the Sun or ofatan odle - Some Nerves we see are adapted for Juste, other for melling, vomex light and others for Seeling, yet there's not ife

from the minth and some from the lenth lair of server, some at this to for the minth and some from the lenth lair of server, some at this trotion to the one one Tuster to the other, but is impossible from their Formation, appearance, or Manner of Distribution to draw any knowledge why one should be determined for this Office and not the other; I have nothing to add upon this Subject but that the Sons ation of abarticular part must always be developed for that of the whole

I am now going to consider what is the chief for sociation of a thy vician, to with the Doch ine officer tion and to cretion on which de pends the chief the severation of life; for the newtral as a nemal of the Resention of any of the secret of this would presently tend to but refrestion which must be in the Solution of the animals body. For when attrock fication is begin which happenifom an internal lause the Patient selven accorders, the interstine Motion quickly carrying the Third to such a Degree of alkalescency that it is impossible the Unim.

The Avenue called those little Bodies Glands which resemble Over and attributed no other live to them but that of ouching up the water fluores Moishere; the meaning of the Mad being the same in Greek & Latin, both the Specian & Latin Pays sicians attributed the same list to them; South poccationary where the Monsture is not sufficiently absorbed there will be later this, but when and not of where we later to dies were called Organs of Secretion and not of Absorption. Shellands are commonly distinguished into conglobated.

conglomerate, the first appears to be a compact unawood Body, and the latter made up of ver bolovely connected together, but the Difference of this outward Form is only accidental, for that very Gland which in one animal is conglobate in another shall be conglower ate and yet both secrete the same hind of Fluid, so that they differ only as the other lice motances of the Unimal re-Equires; for the Bear and the Other have their Hisneys conglomerate; the Bear when he get his brey squeezes it by hugging ither with his two fore Legy, and prefring upon it forcibly with his Body, his Francy Therefore would be injured if they had not this Torm; the Other according to his Way oflife is oblige to Squeeze thro narrow Places, between the Roots of Trees by which Means his Sides where the Rioney lie not being defended by the Ribs would be continually exposed to the Injuries of Sufwere, but having this Form the Parks cavily raced from one another and clude it Jorce), so that their being conglomerate is nothing efential to the Secretion of the Unine but is acceden stab defending upon other Greumstances; The same Difference is observed in the Livers, a lat in Said to have nine Lives, mean ing that it is very difficult to hill one; now no Partie volia ble to be injured by Blows as the Liver, for that the ason it is made up in these Unimals of several Bicces; but the human is conglobate: This Difference of Glands is not only to be seen in differ animals, but in the same animals of different ages, for in a Satur the Kinny is semicivided into ser Sortion

to prevent its being hurt by Refune in coming into the Horts, oferwards it becomes conglobates; Badger's Livers are very con glomerate as are Bears these are not so liable to Brefune as To Blows in falling: The Pancreas being connected to the Stone in the humanes Body is subject to great Shetching when that is distensed, it is therefore a long continued conglomera telfland; ready to give way upon every necessary Oceasion. The laroted, Walival Island which lies between the Tonguerand lower faw are of this vort to clude the Force of Prefound: My Design is not to find Sault with this Distinction of Glands into conglobates and conglomerate, but I blame the Invenforwand Tollowers of it for having paid more flegard to what is merely accidental, than to what is most efsential; for these Named have nothing to do with Secretion; but to inquire into the Unimal Oconomy we should consider, what hind of Secretion row there are and how they are to be performed, adapting our Terms accordingly for Named without the may be applied as Infinitum; the Specification then which I shall adhere to, will be, as of the greatest moment into the sinuous, the hubular and equal Glanow; Those are destind for the Secretion of the Wine are vinuous, those for the Semen tubular, the diversion theequallyland: The lon glomerate Midney of the Bear and Other in their internal Structure is thewarme as the human, every Portion of it having a Sinus which communicates with all the rest . The Difference of the Structure of these vever ab Glando

Glands is according to the Secretion to be performed: The sinuous Glande have their external part stocks with to lood topels it going internally vend off a great Number offine to hels notable to admit thered maps and form a white Substance in the misdle of which is a Sinus colle the Pelvis and here Secretion is per : formed; thus it is in the trioneys, like towhich is the Structure of the Tonsils and volitary Glanow in the Interstines In the fue bulow species the topicle are disposed quite contrarily, the decre tory Substance being on the outside and the sanguiferous on the inside, the arteries ramifying prodigiously, throw of the finer Vefuels and Flueds, of this kind are the Tosticles and Lymphatickes The species calls the Equal is where the sanguifer and and veretory Substance is equally distributed throughout the Gland, this is the Structure of the Liver : Another Distinction io into Glands ex Officio and ex Forma; The Reason of this is, because anatomists sticking to the Uncients allowed of no Gland but what had the exact appearance they described than to be of others would have every part to be alfland where they observed assecration, and for that the ason called the Seritoneum a Gland; the Dispute was carried to a great Height, tile one Karty allowed the Liver to be no Gland, the Testick po Gland, applying these words without any meaning; but our Bufiness is Secretion, and therefore I shall speak of every Gland ex Offices, any part capable of secreting a Theo from the Blood, Subale consider as allano, so an artery ramifying and sending of a finer Shirt may

may be called a Gland, as in the Iris of the lyes where the Dym - repholichs from the Artery fower out the agreeous Alumour into the lamora anter: the Intestines are really a Gland as Official the Canab being as an Ordery which convey the mich make of Huis and the Sactor's as the secretory Jubes, for we who are rank and give Names to Parts according to their live and then distinguish their Porticularities

The tofuels of the Glands are first the Ortery which entering and being differently disposed in different Glands vends of in some as fine Down as in the external Surface of the Brain, this Down or Tomentum by the artery's being so exceedingly ramified causes every Particle of the Pluce to come into clove contact it the Sides of the tifuels and with one another, and so more easily get to the Excretory Tube, and to this, the more ramified bomals ler the topels are the slower is the fireulation in them: In other Glands as in the Redneys, when the artery is greatly ramified it goes and terminates in globular lavities call ( cypto which are seen all of a Bigness; in these Expla on the one Stand is 4 excretory Tube, and on the other attern to carry of the superfluone Blood, his to be observed too that the tolood here falling into a wide Space lower to belocity, whereby the Secretion is casely performed: In others as the spleen and Liver when the Orterus have greatly ramified they send off a number of small topsels running parallel to one another like the Hairs of a Sencil, by this great Division the Blood goes into a greater Space, whereby it telocity is diminished: There is another Difference to be obvorved that in wo mellands the Tuber are streight, in others constanted according to the Conservence of the Sluid to be verilia, where should according to the Conservence of the Sluid to be verilia, where the latter, that there may be Brown for a greater, tumber of ly meh hat he, whose the open into this veretory Jube, but the must be disting this with last in the Every Jube, but the must be disting the some to the Contrary Jube, but that which conveye it from the domand to the Central; the latter is that which conveye it from thone and is call the last deferency; there is the warmen the chanism in the Liver; the Pair the Millians of the Ridneys hove I he wire ago many Lymphatichs, which gove thom for a great Quantity of thin Lymphatich, Stuid to be taken up:

The Glande have large Place with of there which as I before I were not intended for Secretion but to govern it: There is one for securor street I should have mentioned, when I so as speaking of the Power of the Nerver; People that are four ful of being told, when the Come is the and the Surgeon is going to perform go Operation, on as widen the plump terms with become flaces, it is the Iffect only of Palacation, occasion by Tear, upon which the Stuits are somethed into the lateral toffield and so pape off: The Contraction and Encrease of the Diameters of the toffield in manifest in those who whalk have made a thick Ulrine; when prevently after upon a videon Surprises there whalk to a great Discountly after upon a videon Surprises there whalk to a great Discountly after upon a videon Surprises there whalk to a great Discountly after upon a videon Surprises there have a Course too in making the electrons, as in Theoding Tears the of Juiet, for a great whom the best of Surprises being then determined to the thead, and the kind on Rushing of Their being then determined to the thead, and the kind on Rushing of Their being then determined to the thead, and the kind on Rushing of Their being then determined to the thead, and the kind

which should return them being constringed by the Herves, the Tears flow the's the Symphatick Glands; that this is the lase of pears from the great Oppression felt in the Head at that time). The Glandula exforma are covered, with a proper membrane very strong to confine the secretory Substance; and some have avery whooth one as the Liver; to quard against Irritation Secretion is properly calle the vital det, of which there are hoo hinds, the one simple, the other Compound. The Simple is performed by Glandula ex Officio, where a great Quantity of Fluid is intended to be secreted; I should have told you that the Bufine so of decretion is to separate useful Fluide as well as useles ones, as the Somen, Bile Us here a simple artery carries the Blood, the fine ramified Tubes carry the Mather to be seerested, and the teins return what is too groß into the firculation, so that nothing here is required but a proper hamification of y Vefuels: the Compound is where a grow Flued is require; this at first in vecreted with a thin Lymph atich Flued which is after wards substracted. In the Midneys the Blood runs in the Ontemy which is branched off into Lymphatiches, from which arise The Subuli Belliniani, upon these you'll discover the Oction of the Nerver, for a Stricture being applied to their Extremities, the contains Fluid distends them, the laterab Symphatiches are open to and a Subshaction is made of the thinner fluid, so that what is discharge will then be thicker; hence appears the Reason of the pale colourd and limbed Urine of Histories, where this Shichere is remitted and the Urine runs of without

the Substraction of the Lymph: But how is it possible to secrete a Stud from the blood, thicker than the Blood itself? an Instance of it we have in the Bile; for consider the Blood as made up of Particles of different Orders, which may all be separated one from another by different Subos; farther to Mustate this matter, the Bilo and Somen have a large praparatory apparatus; before the Blood arriver at the Liver it is distributed in the Som ach and Meventery by the caliach and mesenterich arteries, where the Lymph is plentifully vubstracted, the Blood the pratard is carried by the caliach and mesenterich Keins into the kina Porta which ramifying greatly in the Liver at last vends off those fine denicile; here the Particles of the Their coming into close Contact with the Sides of the topels, and with one another from thenew are conveyed to the Por Bilarie, which abounding with Lymphatichs, substract the finer part file the Bile we -It might be asked whate New with there is that the Blood should go so thick to the Liver when there are so many Igmpho ticked to take of what is too thin? I answer, the Hecefully is very great, it is absolutely required to be uso; for whould the Bile tome into the Por Belazie too much deluted with Lymph itwould be taken up again by those Symphatichs, and returned to the Blood producing universalo faundices; and this is the (are with those who have destroyd the Tone of the Tibres by hard drinking: In the Organs for secreting the Semens the lave is just the same; the long convolutes spermatich

arteries vens of abundance of Lymphatichs, the thich Blood is carried to the Testicles, where the thinnest of that is taken up by the grofe Lymphatiches and the red Blood is returne by the Kins; when it arrives at the Tubuli Spermatice, the still thinner part is substracted by other Lymphatiche, & the other thus prepared is carried into the proper deceptacle: This Dochine is proud by two Experiments, if you blow up the for Belliniani, the Lymphatick topsels willoriso up : Un. Creum Mance is, that in nephritic Subjects little Grains of Gravel are found in those Tubes where the Urine is most thick: Some have been vostrangely infatuated, as to believe that there is no Secretion at all, but that the Fluids coming to as Gland are changed by it into the Fluid required; that the Blood is changed into Unine by the Kidneys; and into Bile by the Liver; but the bare Consider whon that some secreted Thud are weful and others useless will presently show the abourdity of this Notion; for why should the Blood is is weful be changed into that which is weleft? But these Ruis are manifestly preexistent in the Blood to Secretion; as appears by the Faculencies they make when retaind; in abscepies of the Rioneys where the Secretion of the Unne is partly destroys, the Saliva will become wrinous, the Sweat urinous and in the End there will be an universal Mortific reation, the retained winous Salls being at last heighten'd to that Degree of alealescency as to induce a gent filtrefaction;

so, the Secretion of this wells Fluid becomes highly weful to the Animal Conomy: Co fakarice will often arise without any Fault of the preparatory Organs of the tile; but from a loo great Quantity of it generated in the tolood that it a most be in parato fast enough

The Muscles are wais to be the Instruments of voluntary motions, but this Definition is not sufficiently accurate for nome per form moderations and in that of the Beart, wither of which are govern'd by the Hill; and no little my can be made to determine why such a Muscle whouls be contracted Imperio boluntaties and not another, for which tanson there is go Defect in this account

They call the Stead, the other moving which they call the State, they call the Stead, the other moving which they call the State, but not considering that no toinst in the whole that chine we absolutely find great (Experion has spring from hence; one aperting this is the Stead, whilst another calls it the Stead; but the Stail and the Stead as they are commonly out to are really commutable; there is attrusted which are feel from a greatly commutable; there is attrusted which are feel from a greatly the Sternum and runs obliquely upwards to the Or Stumeri, this is call the televale thusels, to awing the thore invared, but besides that, it has another thoton, for when the thomas of our are or awn outward and the Scapular and, the Sternum inpulled up by it acting on both Sides to give a free Inspirate.

so that in the Ufes of the so Muscle the Head and Sail are both moved, which then shall we call the find Point?

Hany of the Titres of the Muscles arise in am all Points is afterwards grow thech have been call the Kelly, but the fleshy

Part vince has gains that Names:

Every Mustle has a proper Membrane, under which lies there-Hiculated Substance which entered into every part, that every Tibre may have free Motion; besides, this reticulated Substance lies between every muscles that they may easily & lip one over another, with the latter enters the Sat to keep them smooth and from inflaming; thered Colours of the muscles is owing to the Obundance of Blood Sefects as appears by Injection; it is like wine when by Maceration; for when a Muscle have laid some time in Water it loges its red Clour, and the water becomes red. dish; these Blood refeels run in the Direction of the museu lar Fibres; each Muscle being supplied with one or two large Blood lefuels, they must necessarily crofs the Fibres of the truseles, but in crofing they always vend out minute Branches to each Fibre, which run exactly in their Direction; There is a (ireumstance which I should have mention'd before when Supohe of the Use of the reticulated Substance; suppose attende cle to be composed of two Jords of Jasciculi of Tibres of different Lengths, the Proportion shall be to one another with tregard to their Length as 5 to 3; those of 5 shall act when 3 to not ! and those of 3 shall act when the other do not; this is the (ase) in the peristallich motion of the Intestines, where are several Fasciculi one part of which ach whilst the other is at rest There

is a Muscle call & (yeullaris which arifes from the Spina Dows Vertebra Dows, and tertebra Colli and w inserted into the Scapula, those Tibres which arise from the Vertebra Dorsi run directly upwards, those from the Spina Dorsi run sideways and those from the tertebra Colli run obliquely downwards, that they actives werally upon the Scapula in different Directions according to the several Motions required cannot be doubted; One of the Flexors of the arm writes from the Os Humeri and running downwards tills it comes about the middle of the arm below the Cubitus, di wides into several smaller Muscles one going to each Singer, if you hold the Salm of your Hand upwards, and shetch out allyows Fingers except the middle one, which if you bend in wards and pref upon the others with your other Hand, youle perceive a Pain where this Muscle Livider itself which hap: pens from the reticulater Substance in that part being too much she lette:

In the Shucture of the Muscles, were great Number of Blood tofels are joind to the Farciculi of residented Fibres. In their action they contract one this of the in Length. To explain which Borelli invented this Hip pothe for, that the Gibres of every Muscle had naturally the Torm of Rhombook which when they acted contracted into Cuber; but the These being flower Bodies could not thus contract of the model Bernoulli improving upon they, gave his Opinion that they were elliptic lavities, which in their action become species.

Now a lizelo of via Inches (goumference, being near two in Dirameter, when drawn out will become an Ellipfu of & Inches in Length, this then fills with Liquor must contract 13 of its el depheal Form and become spherical: But an Objection is made to this, that if the Muscles are made up in this Manner, vo much as they last in Longth so much would they gain in Thick melo; this indeed would hold hue if every Whodele was made up of one vericular Fibre only, but the lave is different, for they conwint of Savcicule of tubular Fibres, each of which has several minute vesicular Tibres in it. How let us suppose that one of These tubular Fibres contains 100 of vesicular Fibres in it form ing Elipfis, each Ellipfis being 1/2 Inch long, when everyone! of them are fell with a Hard they'll become Spheres, each loos ring halfan Inch of its Length, whereby the Diameter of the legment of the Tubular Fibre will become half an Inch than be fore, their is all the Bulk it will have gain but at thewarme Some it will have lost 50 Inches of its Length, so that the gain ung in Bread the would have Proportion to the Shortning in Lingth, the real Shucture then seems to be of elliphe Fibres , I have use large Rumber to be the more eavily understood: Put your arm into atefiel and pour tates into it hill it bo exactly fulls, con = hack some of the Muscles and the Mater will sometimes run over, sometimes not, according to the Size of the Muscles contrac ted . If the Log be put in and the Gastroenemius is contracted the Hatevuill run over very blainly; this I bring as a thoofagut those who deny the Muscles swell at all, and a fersion by chaw

chaving will easily perceive the temporal Muscle woll; these Vericula appear very plain in a Microscope; exactly alike; is in sufficient to prove they cannot be owing to the Reparation, this then together with the ocular Demonstration of their this whence it a sufficient and the best Support of the vesicular Does Prince Bosides the Blood topicle there enter Herren like wind into The Composition of the Muscles, but growing there too minute to be followed, I can't pretend to tell you what becomes of them those The Tibres of the Murcles run sometimes sheight along from their Origin to where they are inserted; the longest Hores will have the greatest Contraction and so perform the greatest anch of Motion; and the motion of a Part is always actoring to the Length of the Tibres and not to that of the Muscles, so Nature ufer a tenniform Muscle where Strength is wanted and not so great a Motion, and the Shength of a trusclesis ale mays cateris Paribus to the Number of Fibres; thus a right Marsele by which I mean that which has the longest Fibres is intended for agreat arch of motion, and the Penniform Muscle is design's for Strength: His Tab. 2. Fig. 5. W. Insome Cafes very great Force is require, and there you will find a down the Pennsform Muscle which contains the greatest number of Tibres; these arise on both Fides and end in a Tendon, such is the Gastocenemius which is required to lift the wholettingst of the Body: But vometimes a great theh of Motion is required Eyet there can't be a Longth of Tibres in that lave the muscle

intended for that Metion is inverted nighest the lenker ofthe - hon, for as every Muscles contracts one third of its Strigth where there are two of equal Length that in serted nighest the low tre of motion will describe the greatest arch; for sup. pose the Muscle A arises from the Humerus B. at the Point a and another C from the Point of [ ] both which are inverted into the Kadius D the first at the Point [ ] and the others at E det Ebuthelente of motion, consequently when Cache, contracting one third of its dough it will make the Radius Decincide with the Line & But when A is contracted the Rodius D with coincides with the Line Whin therefore must produce the greatest arch of motion There are Chincher Muscles in the Body whose Motion seems to be different, as if it were performed by circular Ti stres, but it does not appear that circular Tibres can close a lie relein most Cafes it is performed by theoretes arising at a Disstance and acting uponthem; but there is alway that circular Fibres may perform this, which is when the two fourts of a Muscle are diametrically fixed for suppose the Orifice A to be surrounded by " B(A)BSibres of the Muscle B which are fixed in the Tounts. C:D: the intermediate face between the fincle and these Coints being filed up with Tak and other Substances, upon the Contraction of the muscu lar Fibres the Intermediate Fat will be prefet upon al Sides

and thereby close the Orifice. In Muscles are two kinds of Motion, one is their natural Claswhich Motion observed when a Muscle is cut acrofs upon which the whole immediately contracts itself; the other is instrumen tal, when they are fill with a Hued and contract as before explaind; the difficult to determine what This that is which per forms the Contraction; Some have accounted for it by vaying that there enters some Particles of mixt Blood, and somer of the new vous Heled, from whence an efervescency arising the Fibrewells and is contracted; but this is extremely extravagant, for all This Operation could not happen in a time corresponding to if Determination of the Will, neither can this Generalneede adapted to our Motions as to the Quantity of Strength we in siend to make use of which varies at our Measure: Couper and some others have thought that the Blood performs it by the Pondus, that I think is his laprefuion. I myself have produ reed musculars Motion in a bilos arm by Injection so as to make the Singers bend; and De Nichols hijo to do it in athat Mednake, which when he threw in his Injection, suddenly rowld and greatly surpriged him . I am far from thenking that the mix'd Maps of Blood can perform this motion by get ting into the Tibres and Vesicula, but that a Hurd of a suitable Fine nefs to those minute hannels is pushed in by the Motion of the Blood from one Vericulanto another; the warme, is done by the injected Liquors: It is a Question what less the there may be of in muscular motion

Motion ? some attribute to them an active Power therein, bald rather think they restain it of you hill a Bird by pulling office Hond sudscrily, it extends its things flatters a little and draws them in again this withe last action; the traveles which perform this are the shongest and largest in the whole animal, thesen sorium being deprind of Communication, the Bower of the Merran destroyd, the Fluids then run indiscremenately into all the Must cles, those therefore which have the greatest tumber of Fibres will have the most Plus and consequently the greatest Motion Muscles have been vaid to have their Untagonists, such were the Herns accounted to the Extensors, but the former aromach shonger than the latter as appears, by the greater Irangth we exert in prefing any thing withour Hands. In the last the ges of Defeases we observe various kinds of Convulsions, which are greatest when they affect the shongest Muscles; in the Subsul. hus Tendinum the Hesors are the strongest and therefore affected as are those too which perform Ronation, being stronger than those which perform Supination Convulsion with the Unciente were of two Sorts, one i Plani Two ine and the other i Seculate; the former were not accounted Dangerous but the latter were extremely so: The Truth is, in the Beginning of Defeaves Convulsions are setup by the Uni mas for Salute Animalis, but at the and of Defeases the nervous Micture is destroyed and the Danger imminent; of the former hand are the involuntary determinate Motions propler finem, aterion takes Inuff which stimulating the Herver of the Hove

the Anima sets up a sneezing this I call a sale tary Consulsion, the Diaphragmand Observing the Musches are contracted, squery out the Dear by prefring upon the Sungs which being driven the the Nove carriers off the nexious Partieles that interted the Nerver's Brocham who was a great Observer says that Communications are salestary in the Region ing of Deares in Cultivations are salestary in the Region ing of Jeases in Cultivation of the Institute a good of the truption of the small too be always expected a good clost, but at the End they would be dangerous, nothing left than Death being then to be expected; this is an Instance of the more voluntary indictor min ate thotions and the theel of a Difease where Salve has no tower. Did not then Serves constringe some Muscles every one we act when the Hill determined a More stone

## Lecture 5

In inquiring into ther Sature of the Bones I shall consider them in three Sights, and first with respect to their Gemical Substance; if distill in after fort the first thing that comes or ver is avolatile Salt and Hater, next comes more Salt lower with Oil having an empyreum afred mell, then comes Oil alone; the at last nothing remains but a load which is last, and Palogiston, this being burnt, the Earth then alone is left behind; this Earth will easily diffeoloc with theirs and miss with

with them makes a Salt; to consider the Bones in their nath Substance we find them to be made up of Earth which is 5/00f the Bone, the rest is cartilaginous Thes, the Carth is their Bafis and gives them their Rigidity, if this bed polod in a. cas their cartilaginous Sibres remain behind, in the proper State therefore the contiloginous Librer are encrusted with this Earth, these this dispose and united constitute the Bones . If we consider them in an anatomical Light, they are compact cells clar and reheular Rodies, where the farts he clove to one ano: the that is called compact, this is the outer part of the Bone, in the middle lies the reticular and cellular part; in the latter the Beams are broader and un crops one another, but in there ticular Substance they are finer, this Texture is most visible nigh the Externity of acylinorical Bone, the use of it is to sufport the tilood tofsels which go to nourish the Marrow and the Bones themselves. The Kones are observe in different animals to be of differt Colours; To most animals they are white as are the humans;

Colours; In most animals they are white as are the human; in as facilian Men it is black, and in a particular kind official called inclatin Amadovada atheir Colours is yet done; there a Sich which comes upon the Coast just be for the Machinels called the Guard Fish, here it is green. The Colour of the Bones may be changed by Diet, an Instance of it hap ford with the Calico Dyers who missing Bran with Madder after they had what the greatest part of its Clour gove it to they

their Hogy, the Effect of which was their Bones became did with red and yet no other parts at least to any sensible Degree; this proves there is a Greulation in the Bones and that of a particu--law Third vecreted from the rest; here is the proper Residence of the Marrow which heeps continually there, I mean that none of it is returned into the Circulation and this is the treason why Difeases of the Bones is so difficult to cure, for this Rued being once contaminated it is a long time before it can be corrected: The Bones have three Park their Epiphyfis, their Upophy : for and Diaphy fix: the first is when one Bone grows to anothere in the Manner of a distinct Bone, they are found separate ingoung Subjects but in abults are closely join , of this Soit are the londyles of the Tomer be ito User's to compleat Ofification the sooner, which begins in none but at one foint, so where a Bone if I may to vay is divided into 3 or 11 or more, Sufcation well have the more Soint to act from; another Use is that the Child may the more easily be brought into the Horle, thirdly for the Ligamentous Fibres to get in behind em and the Bones by which Means they have astronger enser sion: Invome Diferres as in Scrophulous ones, the Epithy of deparate again from the Bones: Any Eminenee which is seen upon the Bones is call and spokly fir which is of two looks the one and and the other Enala, the former is an Epithy fix united to the Bone: the latter is again divided into two kinds, if one Enata connata which

is where the Eminence is been with us and grow with the food, others are what have not always been existent with us, but veem to be full out afterwards by the Alchon of the Misseles, there are called Enate lander, of the former hind is the Reportant of Sugar ations, the works of that Hamer's fire, the same is seen to takech attractes of that Hamer's fire, the same is seen to takech attractes of that Hamer's fire, the same is seen to takech attractes of the Misseles and to de the wholes of them is to add Strength to the thus cless and to de the mine their Schackon the desion, their stending our Tibres being sometimes carried count them, another their is before the same of the Romes, that the Alcohom may be more supported to

The middle part of Bones is called the Drophy or where it is most hard and compact, some have magind this to be owing to the Compression of the Muscles in the Witchion; in some Copy indeed there which lie very large Muscles, and the wither a compact, and the winter may compress the bony Tibres in some Measure and make them lie clover logether; but in other Bones, the they are bigger at their lighty fee than Dyaphy for yet it appears in too young subjects to be with any head on attributed to the Compression of the Muscles, but the original Course is the foremany Parison of the bony Samina, as first beginning there to ofify.

The Bones are covered externally and internally with a Periorteum, the external Periorteum has two Samina; the outer one of which are few from the Sendons of the Muscles de-

= generated and has many blood Vefels; the internal Lamina is kuly bendinous and its Tibres run parallel to those of the Bone, it arifes from the Capvula of the Soints; The Use of it is to support the Blood tofeels going to nourish the Bones, it verves likewive to cover them to defend the Parts from Friction and to afford a proper Substance to fix the Muscles in; the intornal Perior teum inversigated the Bones in like manner; it has always been described as a nervous Membrane because of its great Sensibility; but that as I have already shown does not depend on the Humber of Nerves, for some when hur troill give but lettle Pain, Sensibility always being as their Tension; another he ason for their calling it nervous is because it comes from the Dura Mater, which the the 5th Rie of Herner areveen to go into it, they are very small, neither are towary way servible of its being nerbous; Blood tofiels enter into The Wones themselves on both Sides and carnify in their lubwhance , so that a Bone is form & like any other part of the body. Their less is to defend the tender and nobler Barks, as the Heart by the Costa and Sternum, the Brain by the Granium, the Sioneys by the lower Ribe and Spine and the Liver lehewith, insome animals they serve for Dignity as the Houns in an Ox, they are also of live to support the Height of the Body to direct our thotions and encrease their Arches: Martilager is a Substance of a particular hind, not so well to be under food by a verbal Description as by seeing it: It Sibus being

being closely connected it how been confounded with Ligamente, but you may distinguish them thus, Ligaments when cut appear shingy and when boild the whole will become a Selly; Cartilages on the contrary out firm comething was, but boil crumbly; they are made like other farts with Fluids circulating through them and may be highly injected; they are covered with a proper Them brane call Perchondrium abounding with Blood topels it twe w the vame to the Cartilages as the Periosteum is to the Kones; the fartilages are found to give as Hexebility to wome parts as to the Bernum and Ries which are the quaras of the Steart, they likewise make the Ends of Bones smooth, that their Motion may be easy: Vinkend now to considers the Generation of a Callus which woothing but a lastilage in a morbid Mate: Inour first lawstence we are a real Study come of whose parts cohering loge ther form Tibres, those united make Membranes, Membranes become Sigaments, Ligaments Cartiloges, which by the Increw tation of an Earth form that compact Substance calls Bone. Every Membrane grows more and more rigid as age advances, and when there is too great Regionly in the Febrous barts the la sculation will be stopped; a faller then is formed in this mannew, the Sibres being exactly fills, they all become Cylindricals, of the Fluids are accumulated in a great Quantity the Jubes will be distended, the Surface of Contact will be increase and an Osportunity given for a greater Cohesion Led. Jab. 1. Fig 3. upon the Encrease of Chesion the Fibres will not rowbor early one over another, so that when profit upon there will seem a

Harone for that is there willow a greater the sistence to the Souch; this is conformed by round or any Labour, repeated where a slight Inflammation is raised and he pet up for some teme without forming an Absert the same happens in Ulears where the acrimor shows Matter virilates their Brims, brings on Inflammation and alive which it will be in wan to remove by enthing or escha isotiches, title the Inflammation be common to ye modicine, and is a commonwer Matter be corrected, for the Collins with rive again in white of those things; resther will veneral Callins yield to

any other Treatment;

The Cartilages encrewted with Earth is as I have before said what makes the Bones : the flymist undertake to explain ofit feation by Chrystollization, imagining by what they saw in view ing the Bones of ayoung Subject that the Salts shot over one we nother in the Torm of a Star, and had they examind while younger Subjects it would have had the greater appearance of being so; for there it is plainly seen that the bony Fibres zun directly in the Course of the Blood Kfeels and look like so many Radiations of a whellated Substance; but if you examine them where the very young bartilages begin to ofify, they seem to whoot in the Man of Backet Horh, an exact Sexture, resembling what the Matura whish call Carecophylon, and in other Bones imperfectly of spece they appears like fine Lace: Opification in plain Truth begin. in the Conte of the Bone and extende gradually to the line unferzenee, this is very conspicuous in flat Bones as the Craneumi In the Cylindrical Bones it begins in the middle in a kind of

King, and whool towards each End, going along in the Direction of the fartilaginous Fibres; the Hinor are brought hither as to other parts, where being beat about in their Course they are robbs of their Ocid and their Earth subvices, and enerustates as we'ved in Jea Nettles; that the finest and clearest This may contain Carth I've acready proud to you by Experiment; and that Clies only are capable of defecting it, is a Matter of Fact universally allows; when the deeds are dissipated, the other will remain betind. Where the his Viloris weak the Bones will be imperfectly of feed Hur for & Miowines observe in new born Chiloren that where the Shalls is much open as they call it, there is no Hopes of their living; the meaning of which is no more than that the vital lower was too weak to ofuly it compliably: Richelly Chiloren who are always weak have imperfectly of ifeed Bones: his observed in other Unimals that those who have the greatest motion have their Bones voonest ofified; small Birds soon grow ole; Towle have their Legaments and Tendons very hard, but Twhes whose Motion is small have their Bones most lehe Carhlages of the Ruce in the Bones contain much Earth it is veen by the Reportion of the his tila . When weak Rople fracture their Bones a long time is required to gain a due higidity, the Callins is quickly form d but it wants Rength: It is observed in those Lighes whose Thes have the mostred Blood that they have the formest Bones, as Males whose Slesh cublike the Manner of Beef. Don't speak of the Male Bone as we call it for that is taken from their Gills: Amphibons animals as the Seal,

have a great deal of red Blood and very firm Bones . Lecture 6: Of the articulation of the Bones

As it was necessary the Bones should have higidity, so was it equally necessary they should be jointed together in such a than ner that they might have a fariety of noce wary motions Articulation is the joining two Bones together wo as to admit of threethings, an Arch of motion, Shength of motion and

Revention of Friction

There are three kinds of articulation, the first is calle Diar throfes of which there are throw forth, Enarthrofes, atthrodia blingly mis Enarthrofis is when a large head of a Bone is received into adech elochet, by this Contrivance it admits of a large arch of motion in all Directions and is adapted to prevent Luxations; a Notch is likewise form & in the loge of the acetabulum to en recrease the Liberty of Inotion; upon this account the tech was obliged to be small and by that the and liable to Fracture, this Sort of Whiculation is seen in the Temur and a Innomination Orthrodia, the other kind of Diarthrofis is also intended for large and manifest Motion, where a large round Head is raid into a shallow Cavity, this is design a for motion in all Di= rections, and to quard against Luxation as much as popular The Mature has formed a Ligament which reaches from one Proceso of the Scapula to the other, upon which account we may consider it as a deep Socket and give it the flame of inar

throfis; an Inconvenience would arise from this, that we could have up our arm no higher than to a horizontal los ition, but that the Scapula, gived way and hums round whereby we can carry it up to a fee frontecular Schoolson. In the Back of the hat the whole we have the setting to in its owing that great havely of the hours they have!

The third Sort of Dearthrofis is called Gingly mus which is a regain deviced into two kinds, the first is called angular where a cavity and two Emonences of one Bone answer the two Cavities and Eminence of two Bones; this is interest for a great arch in two Directions; the Strength horeby is the same as if it were one continued thome when employed in a lateral Direction; the second hind offingly mus is circular, where one town received the End of another in one let wently and is reed by the other in the other Corremity; this helps the Inconvenivences of the angular kind, the Port being by this treams enabled to perform the nation and Supination, the the thumer us have one Share imperforming these thotions, which with the Ulina & Radius gives us the chief Instances of this articular

tion Mederand Species of attendation is called Synarthrofus where the Bones are so connected as to admit only of Observe Motion, and is of two kinds, the first is Syndosmus, where the tones are tied together by Ligaments, if wourds of their move together than Motion become manifest; this is seen in the eight Bones of the Sarfus which moving together with the first frink tones of the Surgers make the Hollow of the Stand; the second hand is called

called Synchanina for, where the toones are waid to be connected to one another by a lartilage; but the is spoke with great in proper ety for the intervening Cartilage heeps the Bones from Contact where then is the Commentant Such in the Articulation with the Wills and Socraum where Motion is obscured and may with more Surtness be called Syndesmus:

The third Species of articulation is call dym thyfis, where the Bones are united so as to admit the Growth of Parts, instanced in the Sutures, where the Teeth of one Bone exactly answes to the Notches of another; there are two kinds, the first Simple when the apex of the triangular Tooth is vorituated as to fouch the Bottom of the Notch, the Conveniency of it is that an exteranab Refoure will make them lie closer together, but an insternal one will make them recede; the Sutura Frontalis and Jag Halis is of this Sort: If there be tock & before the Brainhas done growing as at 16 or 17 which is the time they gonerally close the Persons are very with a God dines Pain of the Head and Tomiting and generally throw up a slimy thatter, this matter is generally look a upon to be the Cause of the Disorder; but the Same will happen faleson in perfect Health be made to women; the real fause is the Brains being compreped, whereupon the anima webs up a tometing to determine a greater Quantity of blood to then Head and to encreave its belowing, in Order to make the Bones recede from one another; if we afrist her by vomiting we may remove the Disorder unless the Sutures are too much fastend to be separated: alease was related to me of a young ou

dy, who about it was taken with a Gidinels, Pain in her Head and tomiting, her attendants thought proper to bleed her, the Symptoms went of when that was done; but in a month or six Heeks they returned again, Bleeding was renewd with the like Successas before, but not for a longer home; the Disorders at the like Period return & again and again, Bleeding was repeated as often till she around to about 24 when finding no more Relief from this method now any other whe died: By this Treat ment they entirely perverted Natures design, whereas had they done what she indicated the Lady might in all hobabis - lity have enjoy the usual Health and Length of Life: The second hind of Suture is correspondent to what the Joynmers call Dove failing and is seen in the Sutur a Lamdoeins, this is no more than the vimple Suture in young Subjects, and is formed by the Teeth being receded from the Bottom of the son Soenture into which they are lodge, upon which the bong Fibrew shoot out and formations broader than the part into ish they were first reed, so that it requires an exceeding great Shength to separate the Parts Thus articulated: A second hine of Symphy fis is called Gomphofes, as where a Nail is deca into a Board; but there weems to be another hand of Gomphofis as in the Seeth which have two or more hoch going from the Collar of the Tooth into the Jochet, which spread in such at nanner that they can't be drawn without breaking off either the Point of the Root or that part of the Saw Borne where it is fixed, but the breaking the Took is never of any ell

Convequence as will be whewe more particularly when I read

upon the Teeth: The last of Species of Symphy for is call & Schindule fis; and is to one Bone is reed into alpoore between two other Bones, as the Tomer between the two Maxillares; this also has a Grove with

received the Proce four Spongrofus:

Thus we have run this all the Species of articulation, where wever one is contined to admit of bending and hurning without being fout out of Soint, yet have large and manifest Motions; one is for obscure motions only, and a third where the Bones camot recede from one another but upon extraordinary motions; we may here observe that his impossible to provide for all freum stances in one Articulation, vince each has its Conveniences and Inconveniencies; and the it is nece wary to rank the Orti sculations under general Heads, yet they are not exactly an swerable to what we compare them to in the chanichs. It will here be proper to remind you that Orticulation is to be distinguished from Connection; the former is where the Bones perform motions by moving upon one another; the latter w done by Ligament, without which the Bones could never heep in their place: In some parts is the bursal Ligamentone of which covers the upper End of the Os Humere, in other parts they are vellated as those which connect the Cartilages at the End of the Riebs to the Sernum; some are flat to strengther the South as the lateral Sigaments of the Singers; In the Size

wide of the bursab Ligaments are others, which are crucial, as those which connect the Tibia and Temur together: Here like wise we see Nature takes exharionary the thods to lefsen Section, by multiplying the Surface, for at the Soint the Bones are not only hip'd with a fine smooth Cartilage, but within the foint are how Semi lunar Cartilages, by which Means the Surface becomes four times divided; We lekewise observe ano the Rovivion by Nature in forming Glands here which were first observed by Havers, there afford a very smooth thin laber -cating Liquor), and are so situated that every motion ment com sprefo them; this is abroumstance I should have mention is Sopohe of Secretion; for all the Glandes are by their Situation of wisted by the compressive Force of the neighbouring parts, as are the Ridneys upon every Inspiration, the salival Glandsby the Motion's of the Jonque and lowers Jaw; the Jesticles too are comprehed by a Muche continued for that Purposes

Secture of the Sones be

The Sheleton is discord into the Head, the Trunk and the limby the Stead is discords into the back and upper part, fore and lower part; its Form is nearly globulare, to contain the greatest Quantity of train, as Spherical Surfaces are the most capacious; another the of this Form is that every foint may be as the Crown of an Alach to sustain the Force of external Injuries. In ancient this tony we find that many People had long Steads.

Heradotus mentions a whole Country of such, where the Moren upon some Recount bearing the Herad of their Children they took this Sorm, which afterwarder begat such; whon this Resourt they were balled they exceeptified is: and indeed various things may also see the Sorm of the Shull; a Boy died of Epile pretificts by your old whose Shull was of this Toron; I've another of an doubt, what he died of I know not, but doubtle for he underwent great Inconveniences; in both the Softhab Suture was interesting to literated and in the latter most of the Sutures are zo in fart; a more ancient of these we have in Homer where they were looks upon to be in Jorda

She Shull is composed of eight Bones; vid Compond. Wear wish of two Tables, which are the external and internal damina; between them is the reticular Substance calle medi-Sulliam here : You are to observe the Inequality of the Shickme for of the Shull and of its Superficies in which are many Do proprions; the Meditullium is protty thick in some parts in others quite wanting I mention the sethings as what ought particularly to be regarded in he panning; the thedihellium formerly was the Mark for the Saw, but you see there won enough for not depending upon that: the Bones loo be so uneven you may reach the Brain on one Side before you overhalf theo or the other ; wo that when you apply the Tres pan you must frequently take it out and observe what ap spears, when you come at the dark part of the Bone you may conclude you are near through

Buldes the Convenience which arise from the Form of the Shall it has others from its Number of Bones, the first is that they are can puble of receding for the Growth of the Brain; by this too it has the greater Shongth to which the membranous Ligamentous Substance contributes which lies between the two Tables; by this Division too there became a Necessity for Sutures which confine the Progress of Fractures. Some talk of the Counter- figure and Counter Frace here, others deny it to be popule, forway they where the Blow is given must be the greater Jorce; but upon importial Exams nation I find such may have been, but his where the Sutures have been obliterated, and in this lase if atman falls directly upon the himder part offin Head where the Bone is very thick, it may crack near the temporal Bone as it is there much thinners: It sometimes happens that the internal Table is broke and the external remains whole, which is where the external being tough gives way and the other being brittle cracks by Refoure : Sometimes it is difficult to distinguish a Tracture, the Signs in other lafes being equivocal; Some defend upon the Blows being given in such and such a tranener, but that is very deceptive. The first Symptoms which supervene are Drowsine so and tomiting which are equivocab with what arise from Concussion from whence has proceeded Extravasa. stion; tomiting is raised by the anima to force away Compression from the Brain which occasions Drowviness; but in this Silve ation the Patient can give no Occount, we must immediately caise the Loals, verape of the Periodeum and wife the Bone clean,

pour a little Int upon the Cranium and then wipe it of carefully again, if any Vestigium of it remains it is an Indication of a Fractuce, but lare must be had not to mistake it for a Suture which was even done by Hippocrates himself; but near the Sagital Suture lowards the Samdordal sometimes on one Side sometimes on both, there is a terforation in the Parietale for a Blood topich w expands itself upon the Bura Mater; and it has frequently haps spend that as soon as the Membrane which covers the Cansumts Divided the Symptoms of Fracture have gone directly of to the go Surprize of the Operators, but it is owing to this artery's being divided at the same time; this however is wanting in some Subjects but Morgagni thought it of wech great Obcount, that in obstrate Hemierania he adviso lupping and Societying whon the part, which he often found of great Benefit: The De Sign of the Trepan is to raise depreted Splinters or to let out matter extrawas ated upon the Bearing but before it be attempted let En acuation sons berhyd, bleed and repeat it often if the Patient can bear it, eva--cuate the abdomen by proper cooling purges; if there do not an " ower your Design you must proceed to dealping and hepanning which is frequently necessary in many places; for the Dura Mater shehs to the Satura Sagettales and many other parts which made Boerhaare call thes Divisions, Cambers, so that Blood and matter being logo in one cannot be let out at another, upon which decount it is necessary to trepon till the Symptoms go of In the Sutura Samoocides and cometimes in the Sagistal are observed several distinct Bones call'd Ofa triquetra; in the Subva

Squamosa are other little Bones call & Ofattomiana, these you.

The Sagittal and other Putures often happen to be obliterated, and that very young which subjects teaple to great inconveniences; & sometimes they continue aproternatural Longth the Lagital Suture cometimed reaching then Nove; this is uncommon in doubte but is the natural State of a Fiture . I have before to Bo you the Bones are first membranes in one point of which Ofictication begins; and in the Shulls of Fatus there is no Indentation, but the Bones are con neeted oner to another by thembranes; and when in the Place of the Lamboordal Sutures the Bones are pretty distant one from another it is a Sign of weak Obification and consequently of aweak take; upon this the sniveres gent prognosticate the Death of the Child. Hometimes happens the Bones rice one over another, then it is calld Moute shot, if it happens between the Orcipital & parietal Bones it makes a mishapen part of then Head; if the Compression up con the Brain be not great it sometimes continues during Life; but of otherwise; the lieto sels up a crying whereby it is sometimes re mond, but most frequently it hills!

In the fire and lower part of the Or Frontis and how Senuses which are hot existent hills we are the so to years of type; In Estimate in the Own papers into them but in Inspiration as it runs quag versum it is turned assess by a bony Convolution; for others were Another injecting in flame the maxillary them to anex and produces territhe foreguences; these two Singles have a Septum between them, in which onder the Foramen Coun; there are two other Joram ina above the Orbits of the Eyes and two within

them, thro which last runs a topich from the athmorides which burshing occasions a Hamorchage that proves of great tuli of in obstante Rins of the Head

The Co Ethmocides is intirely composed of irregular Processes, two ofwhich backward next the Os Sphenocides being hollow their lavi thes are call & Sinus Themocidis; but in soparating this Bonchase are commonly broker of being very lender, and voby mistakethose Singles have been called Sphanoidab, they lie directly under the Sella Turcica and are ofend at a certain age, the Tirpafer into them in Expiration but not in inspiration by Reason of a convo-Tute Bone , which directs the liv into the thind pipe on each The the Cista Galle, on the Side of the leista Galle are the Jora emina for the Offactory Nerves and Blood tofels from the Cante rum to the Nose; The Use of the Senuses and Convolutions are to admit a greater Space for the Expansion of the Offactory Herves which are spread upon the Mombrane with which all these sine row Bones are covered; this Membrane is loaded with Blood lefwell to heep these parts moist, and to enerelope by this Moisture 4 Particles of odoriferous Bodies; to secrete a sufficient La antity of There to delute and wash away those which are too writating The Offactory Nervoses Filaments are too minute to be haced, but they have by theans of this Convolution a large Surface in a narrow Compate, we procures a free accept of the dir to them, for you me to observe that we smell by Inspiration: InDogs, Cals and Beach of they, these Convolutions are more remarkable this questions by some, if lake have an acute Smell, where a moure or Bind is to befraced; and it was so me to berender a more are cute by Retention; for by the Motion of their Hostiels they affe to have a Command of applying this Sewation when they place and of revening it more acute; like another's turning it lyes to an Object to see it distructly; In the Lion the Convolutions are very wreat;

The No Paretale is quadrilateral, making the lateral and upper part of the Shull. An Artery of the Dura Mater less configuous to the Vulure which joins the right and left Parietal; in the inner Poe is also aduleus under which less the Sinus longitudinalis so that you must never trepon here for the Patient would una

word ably bleed to Death

The a Occipitalis in lightoren is devided into four lefer ones. The temporal Bone is made up of his parts, equamora Expersiona; its invitations very unequals and the Diploes wanting in some parts which makes it very dangerous to hepan upon it, one as the temporal Muscle must then becall thro its never done but upon unavoid able the cepily for the Tomamina willow pend: The Matter waterness open into alanty calls the Tympanum behind the Matter town of that Name: In the Tympanum are two holes the high rest all & Jenestra Ovales, the John Tenestra Coher a dafrage to the Calls of the Marker Roccep; the Jenestra Ovales opens into the total union in calling that the Both mush che is the Second of the Tympanum: In it are the four little thomas and Organs of the Tympanum: In it are the four little thomes and Organs of the aring, malleur, Incur, a Ordical are the Stapes: The Manubrium Male

Les les between the Lamina of the Membrane, from the Malleus runs the Rocepus Ravianus always towards the Face; to the hinder part of the Head runs from the same part the Processus brins; the Curvature of the Rocefour Salpringans is what makes the Tymparum, it is called after this Name because internally alartitage is spread upon it something like a Trumpet; the Mean has internus begins where the Esternus ends and opens into the Mouth just behind the Palate: The Nortbulum is back wards being between the three Semicircular lanals and lochlea, which forms two turns and whalf, divided by a Septum into two Scalar, the external opens into the Vestibulum and the internal into the Tympanum; the testibulum three semircular Canals and Cohlea make all together but one Bone having the Cochlea forwards and Semicercular Canals Backwards, they open into the Vestibulum by five Holes: Or Sphonocides is not express & by its Name, which implies the Form of allage; it makes the under and hinder part of the Shull; for its Rocefus & vid lampend: it is connected to every Bone by a Suture of the own The Foramina of the Canium are as in the Order of the bom-

spendum ...

## Secture 9th Of the Bace to Cheeks

The O Unquis takes it Hame from the Resemblance it to the Nail of a Porson Jinger; it is connected to the Outrontis, navi & Maxillario by a Siture of its own; in it we observesa Suleus for the Logment of the larrymal hag; in some Subjects this Bone is not distinct, but the a maxill are throws thelf back as it were and forms it, in this Case it is thicker : The Sulseus with the Roce to of the Or maxillare maker a l'afrage into The Nove; below the Ofa turbinata are the two Rinch Lachy smales whose Duck meet and throw the Tears into the Saccelus Lacrymalis: this Seculus sometimes from Colo or a scrophulous bad Constitution inflames inflames, upon which it Duetelops, the Contents are confind, the law wells and the tapage into the Hosers what up : If the Inflommation continues the Matter grows assimonious cornoces the Membrane and an Obscefore forms; this Difease is always to be suspected at first from a dry Hostil; if the Inflammation bestimely taken Notice of Blesding Ruging and cooling applications may remove it; if it becomes an Obecefe, and it be opened and well digested it commonly gow off: but it often happens to be venezeab, sometimes from other. (gufer but advances slowly, so that it is neglected, till the them s brane becomes corroded and the Matter has cariated the Os Unguis, when running into the Mose it gets into the Celle of the Os Chrocoderand renders it incurables for here can be notes

- foliation except in a very happy Constitution where the Caries sometimes falls of of itself: Most Buthors have wrote very impertmently about this Difease particularly the Surgeons of Paris, for they suppose the Canal to be staffe with goofs matter which stops the Sears from running through it and therefore prospore Injections to force it awdy; in its recent State and when the Inflammation is removed it may be proper to pape a small Silver Wire thro the Canal to direct the Matter, and the above for not being laid open an Injection may be made use of at proper times to mundify it wing roft Comprehes at the same time; but they speak of Injections toward away obstructing matter logging in the Hasal Duet: Now where the land is de Stroy's, which com monly happens early in the Difeave, a depending Orifice must bemade by a Seel Instrument about the Bighet of a from Quilly the Ollinguis is very thin and will make butlittle horistance; but when the Maxillary Bone forms it as I before Said it will will make a little more; this I mention to caution you that where you find a Difficulty in getting through greater than can reasonably be expected from this thin Bone, you may depend whon your Instruments being engage in a wrong part; which happen's to a Surgeon of some Eminence in Town who going to perform this Operation perforates the a Ethmoeises to the brain and the Patient soon Seed; the most depending part is to be chose, and cometimes the Ou Planum answers the End botter than the Or Ungues: Woolhouse assurgeon at Paris never look any lave

to preserve the Duck, which he always looked upon to be filled with a Jungows Hesh; if it be not vays the Jeans will lodge) grow acrimo enious and renew the Difease; but it may be preserved as first as I before vaid by a Silver three being past of through every Day. The two nasal Bones which make the fore and upper part of the Nose are sometimes connected to one another by an anchy Souther Or Zygomas vid. Comp. it receives this name from it Hosefus making the yoke under which pap the temporal much it is withouted in the upper and lateral pothe Face forming anien regular Square: The Or mavillare is avery irregular Bone, which makes the middle and lateral part of the Jace; Ithou a Rocef for the intermal angle of the Eye, and ther for its articulation for the Eygoma and another below for the Reception of the tomere: It has a Jora omen Infraorbitale through which runs an artery inversal Flaments to the upper Seeth, there is another lading to the da late but is covered there with a trembrane, there are & alwedi for ou many Seeth It is connected to the Os Trontis by the transverve Sahure, to the as Unquis, navale, Tygoma talatinum and to one another by Setures of its own : Between the Orbit of the Eye and Teeth on each Side of the Face is an antrum which othene at its apper part into the Move; it was first discovered by D'Highmore and upon that Account is called after him; this opens only at a certain age; its Palsage into the Nove is so quar. ided by a convoluted Bone, that the dir paper in in Experation but not in Inspiration, its lind by a fine thin tence membrane

with no more Blood to feels than what are sufficient to nourish it; so that there are vis of this kind of Sinufes that open into the hove; all lind with a mere Periosteum and subject to the same Particularies hier as the antrum; These are all conducine to the Change in Your fication; for at a certain time there happens what we call a break ring of the love, at which time we can't give the Letters the same Sound as before, but frequently sound one for another as a D for Ci we can't pronounce then pro libitu; for we may considers the Lack offerification as these three Quantities A the Glottis B the land hes of the Mouth and Hose, C the Sinufes; when we open the Uper ture of the Glottin and throw the dir into the Cavities it will give a Sound determined by the Bignofs and Form of the Cavities and the Sungth by which it is thrown; now if without our knowledges there Sinufes are sud denly open's and we go about lowound Das usuals it will be quite change, there will be a different Sound : For Scompare it to a Haut boy where a given Noteris made by a particular finds ing upon the trees, the Instrument being laid avide, and unknown to the Player, one comes and bores two or three holes in it; the Play , excelurns, and the hounderstands what he takes in hand, becan now any way produce the some Starmony he did before, for all his Noted will be change; so People that were wont to ving a fine Treble on a sudden can raise their love no higher than a lenor or double venor; the heavon is they have now a new Habit to ocquire to the new Organs; for the Growth of the Cavities is gra " duals, but the Sinufes are open's suddenly, so that they have now to habituate themselves to a litch of love suitable to the present

Town ation of their Organs: But there is something of greater for sequence than this, for this antrum is the Seat of Diverse called Ozana: The Palsage from this Sinus into the Rose is on therepo per part; the Membrane which lines it happens sometimes to inflame and forms an absect, this is generally looked upon atfirst only as a common Pain of that part of the Jace or Tootheach, so the Matter logging here unregarded, grows acrimonious, corrode the Bone, and when lying on the contrary Side will some Somes run out at the Nove; this then discovers what it is; butsome. times it breaks out at the Check; great Mischief is occasion'd by it, fouling all the Reighbouring Bones; the Patient becomes fatigued with his Pain, loses his appetite, gets no frest, grows feverish and generally dies to bie; but if he takes it for the Tooth ach, and resolves upon having one drawn, the Matter finds at la page frequently thro the Sochet, and the true Disease is discovered; if by any other means it becomes known, one of the Dentes molares must be drawn, of no great Consequence which the it has been disputed, for upon vary sing the Position of the Head any will answer the End; the Intent is to make a depending Orifice, but if drawing the Tooth does not succeed, asteel In nument must be thrust thro into the lavily, and as it sometimes happens that Jungus Hosh divides it into two Partitions, you must take Care to clear it away; this really) happen'd in avenereal lase: The a Turbinatum, makes a Convolution in the Nove by the

Une form Hoce to all and hange upon the Antrum maxillare by its Une form Hoce to talahnum in a very irregular hone, its super hoce is

is passed over by the optic Nerve, which were presto upon byit we it becomes infended from the Lucy kindea deswelling, so as constituted to cause an Amaurasis:

The under Saw is articulated by Ginglymus, kning a lartilage

whereby its Surface is encre and.

The week are divided into the Pressores, Conine and Holares in all 16 neach Saw the how first being charbe cuts the Aliment & the Winds from and having rough Surfaces source a syam start; the Points of the Venth are first form a which are gradually pushed down as they encrewe; at the End of a toot is a large Form men for the Blood byel which goes to none which sends the cost in the mother and the internals the cook to look to the which is at first cover by an external one which sends to look to the the host for the small Foramina of its Shoot, but when it get through the aw it is feed from the membrane; cover ing then only the Hoot; with the Blood to fell of the great Foraming for the Norwe but being obliterated as the player wood the survey of the start being obliterated as the player wood the survey would causely which is the Heaven that their Weeth frequently more locased without any great Pain:

The Deternal part of the Leoth being shiped of their the costerning which had it continued would have been extremely painful to us it being any thing, is then covered by a find Jost of Cramel or North Colored or North Colored or State of Colored or North Colored or State of Colored or State or Colored or State of the Colored or State or Colored or State or State of Colored or Col

former; for it seems to me as if the Pain and Inflammation which attend (beloven in cutting Teeth hatio them as it were and confirme this external Case; which should make you cautious not to lance the Gums too woon; those which are formed in later years sooned Deisy which may happen because the Heat and Pain which attends them is so little as not to be sufficient to make the iname berget if the whole Tooth is put into acid the bony part is hurn's into alars the and the Enamel into aking of halk; in Scorbutiches where astony matter grows to the Sides of the Teeth it will be necessary to employ the usual Dentifices but then very cautiously and not too long; The Jangs of the Teeth often grow praternaturally; algens Heman having great Unear inefe in his Jaw had a Tooth pulled, which was found to be made up of 12 smaller ones lying irregulars ely, if the Feeth are drawn when young the neixt Reighbours push against the Sides of the Sochet till it is quite closed and when thople loose their Teeth by age the Alveoli all fill up

The Co Algorides is the Form of the Greek (v) and who Bafe

to which the Tongue grows:

Lecture 10th Of the Bones of the Trunk

The Claviele serves to keep the Router Bone at a profer Distance; which may be of the in discerning has bures of it. The a Sternum serves to defend the Heart and Lungs; inyoung Subjects it is composed of 5 Pieces in Bouth of 3; The Roce to which is sometimes enreform, sometimes before, is always castelaginous. The Sertitus are in Number 24, they are thus divided that each Rew moving a little when the other, the Spine might have a great or would make right lingles, where among the Inconveniences of bonding only at one place it would hart the opina & Marrow, there we is to defend all the tweere and to contain the through of person less, between each is a ligamentous slubstance and not cartilaging now as has been supposed; it is frithy thick theing comprehiety a perpendicular toucher contained makes attan near on Inches who two at Night than in the Morning:

The Or Sacrum in vais to have it hame from its resembling the face part of a Mittee; it is made up of over at Pieces when yourg like lake to be a forwards are anchylourge together; at the kind of the the Or Copy or composed of a different Pieces, which are book inward to support the wight of the Coplants of the Utoamen frof wing backward & stownwards; sometimes when we are very if the drawn in by the Utohin of the Muscles and anchylosight in Temales its on arrows the Pafrage as to make Delivery very

difficulting are in Rumber 21; on each Side 12, though in very short Hople one on each side is sometimes wanting, they are divided into the true and spurious, the former are the services Cartilages go in mediately to the Bernum, but the latter are we intered to the true; from whence a figament is continued on to the Sernum In the Inferior Edge is a dulous which some have attributed to the Ruleation of the Ortory, but that is always of

word from the two uppermost the the Artery less for district to surven it Their their to make the lateral lander of the Thorax, and yet to the Elevation and Deprefuen of it, the last and sometimes two last have no Cartelage but le love in the Musels;

The Os Imominatum when young consists of three Kones the Seum Sehium and Pabio: this with the Ordairum and Cocyx makes the Pelvis, which in Females is largest, they are connected logether by Ligaments: It has been questione whether those Ligaments give Way to facilitate Delivery; come have theed the Experiment in Bodies recently dead by Levers, and have thought they did not well to the Force of them; But we are to consider there is great Difference betweent a Woman who is prog enant and one that is not, for as they grow ne area farturition they become more lax, as if a greater Quantity of Earth than they could space were spent whon the Bones of the Fetins, and the Con enion of Gentlemen who are most embloyed in that thet and of the best Judgment is, that the Ligaments do give way and afrest that they have even felt them; particularly Gregoire offain who is The most noted Man of that Profession; about a Month before the time of Delivery it is common for Homen that are only walking) crof a toom to be taken with such Pain that they can move no fac - there, the Ligaments seeming to be so lax as not to be able to heep the Bones clove enough to Support the Height; and I de preted a Homan who died in Child Bed, where I found the Os Innomina tum and fubis easily moved one upon another; this Homan

had no difficult Labour, no large thild, to over strain the Ligam; but if it so, it is sufficient that they give way upon extraordinary Oceavions; the Woman deed of a Hamourhage

## Secture 11: "12 " 13" 14" 123

Of the Bones of the Limbs , muscles bofontents & For the Parts of the Scapula and Aumerus vie Compend In the Restrial Muscle is to be observed that its Sibres deceptate one another pretty night heir Insertion, so that those which arive at the 7th Cathlage of the Sternum are inverted nighest the Head of the Humerus; this is to have the greater Longth & to encrease its action:

The Trapezius arifes from the Soinal Processes of the tertebre Dors, tertebra lolli and from the Os Occipion, the Tibres run upward, downward and outward and are all insorted into the Scapula which it moves upwardy, bachwards and downwards, this is a Soil of compound muscle; one part acting, when the other does not; they are easily reparates one from another :

With the gard to the Spermatick to field they are commonly to paje through a thing composed of the aborminal topicle, but the Me chanism of this partie more curious than is comprehend Sed by that Expression; for first of all they pay through the Fransvervalis near the Sleum, & then run about halfan Inch under the Obliques internes & then get through it, they now run about the same space under the Obliques e ofern and then porto

nate that also, advancing downwards, they pape over the Os Pubis into the Scrotum, so that every lesforation is quarded by the contigue sous Muscle to prevent the Guls from paying through it? The hee he arising from the Cartilages of the 5, 6, and 7 of the true hibs runs downwards and is inserted into the Os Pubes, in this husele are ven what they call Inervations divided as it were in its length into three parts; for the muscular Tibres are flacing they'll admit of butvery little whetching, this is contrived therefore that that might be the greater whereby is hopfup a constant heading of the Com tente of the Contents of the abdomen both for promoting Digestion and secretion; The Pyramidalis is in some Subjects single; in some there are two, and in others none at all, but then the Kecher supplied its place, it arifes from the as Pubes and is inserted in The Linea alba: Couple says its The is to compress the Bladder adequately, but does not explain how: the lave is this vid Tab 111. where A represents the Blodder of Urine ouspended by the three round Ligaments BBB inserted into the Navel C. The Grame Salve a inverted into the Linea alba and that into the Plavelite we the same as if the muscles the eff were continued to it; now when the Blad de is fully suspended its muscular longitudinal Fibre E cannot act; but the fyramicalis contracting bull down the Na evel, where the Ligaments being relaxe, y Bladder a little collap. war and its own muscular Tibres force out the Unine We next come to the Peritoneum which lies immediately under the muculus Transversales, its Fibres tun longitudinally and

hanversely, this is call's a double Membrane and is said to contain such and such parts in its Duplicature; the the aning of it, will be explained by this; there is eated Duplicature; and of the framework and Duplicature; and all them branes are composed of several of mina; between those of this there is a reticular substance as is plainly ven towards the level; this is cent of to several of the fiscera

Athe Movel is inverted a Ligament which comes from the Siver which originally was the Orley that convey & Blood for the nowish ament of the Total, the other three which are the Swipersons of the

Bladen) retwon't the Blood from the Letus to the Mother? The Omentum is a folly thembrane which covers not only the Interines but the Lover Stomach and splean also and runs to the Soine, where reflecting it makes the Mesonan to which the small Interines are connected from Beginning to End, it then form the Mesocolon, spreads when the hinder fart of the landy and dinder into little Omentula accompanying the Colon in all its Bogrefs, till it falls down into the Pelois and makes the Meser Jum, its Use is to labrify, to sheath the accommons Particles in the Interior and to serve for a general relaxing Somentation to all the fiscera:

The Diaphrage arises by Crura one on each slive the Kestelia of the Sorns, separates the Abdomen to which it is concave from the Thorax and is invested into all the Ribs and Sornum, a little above the Conform Baceps, it is perfected on the right Proc for the tona Caras and on the left for the Gula going to the Stomach: the

tween the Deaphragen and Some runs the Cortagiust below it go of the Caliac & mesentarich arteries In Order to promote Digestion it is necessary that a large Quantity of Blood whould be convey'd to the Homach and Intestines for a large Secretion during the time of it, and to delute the Chyle, but the Stomach being fill d'in Good, it veems unavoidably to compre fo the Corta upon the Spine, and thereby hinder the necessary Supply; this, Pature has taken Care to provide against, in Order to have a clear Soca how this is perform's let this Semi-ellipfis represent the Cavity of the Thorax, the curved Line the Form of the Diaphragin in Expiration; and the theight ! Bafu its Toin in Inspiration, which is the Dila Sation of the Thorax from the Complanation of y Diaphagun for the dir then rushes in and distends the rings this being un derstood let the Line ab represent the curved Sincin this heat Agure become complanated of the industrial to industrial of the dortal lying upon y a Spine (e) the Coliac artery and I the Me. Senterick superior going from the Clorta to the Stomach, now it appears that when Expiration is performed the Diaphragm prefer whon the Ooth in a curve manner, but in Suspiration that pre foure is taken of and a fee Papsage given for the Blood to pap along into the Caleach and mesentirich Anteries as well as all the inferior once, this you see the Prefource of the Stomach gives Opportunity for more Blood to enter into the two first, as 4 is applice below their Origin:

The Muscles of the Nech and Shoulbers which are inserted in the hibs and thernum africtine Inspiration so that when you see the Cervix erect & Shoulders set up, as is commonly the Case in laborious Respiration it is abad Symptomp The Martoideus Muscle is cut for the Wry Mech but it must al 2 ways be that to which the Face is hurned The Sacrolumbaris, arifes from the Os Sacrum and Spines of the Sleum and is inserted into every one of the Fish by Tondone, to pull the hibs downwards The Councalis arives from the hansverse Proce fees of the Vertebra Colle, and running downwards insert a Tendon into every one of the Ribs and foull them upwards, this truscle decupater if Sacrolumbaris, so we may call them both to gether a complex Muscle: their Tendons are chiefly the Seat of those foins in are the first Symptoms of malignant Difeases: The Membranofus of the Thigh arifes from the Sleum and with a hood fend inous Inscia cover the other toweles on the out Side of the Thigh, this likewise is the Seat of Pain in me 2 lignant Difeaver: The Thigh Bone is helt in its Jochet by the burs ab Ligar. only, for as soon as that is cut it falls directly out, and remained then surpended by the Ligament within, so that this last Ligament has a quite different lese from what has been atteibuted to it, its free User being to prevent the Bone from Lavating upwards, a Franum of this Sortveeme absolutely nece pary - Thelylandin the Socket in Scrophulous Cafes is subject to Swell and throw the Head of the Bone out

In a Sinus on the stead of the Flumerus runs a Tendon which by hard wringing or some other Motion is sometimes thrown out, upon which follows a Low of the proper motion of the Urm as if a Suxation had happend, and the fee the of the Arm cannot be regains but by wringing the arm the contrary Way and there by reduce the Tehoon: In Telom where the Motter is form upon the Capsule of the Joints they will be attended with produgious Prin, and the Matter invinu rating itself by Means of there endone betwiet the truscles will be aft to form alweeper in Livery parts of the arm, it should therefore be letout as soon as possible): The Tenden of the Breeps of the Tom being of the perfect inclass hehelubetance is that which is attended with in much Danger in prices by takeding, upon which most commonly happens a Mostin Speaking, Showing itself by Strams all along the Urm, as if the inter which Haid were the first that pute feed, the Ustery too is very Cablewomehmer to berwounded from whence follows an Answirm; wis the large there which runs close to the Fide of it, from the wounding of which you would have a laraly for if nothing worse; great Care should there fore be taken to examine; if it ther of these are expand to the Lancet, the artery well bethnown by its Pulsation, the Tenden will fal hard like a love, ar will the Harve when the Orm is extended, but will be flaced when it is bent, where as the Tendon will remain the vame; there are commonly found night the Borrichet tin; the median sometimes is dangerous; at other times that and the lephalic Kins are recompanied with vorme nervous Filaments which being cut is followed by a Numbrefu of

the little Finger and that next to it; a tendinous Lascia from the Tenden of the Bice by is vometimes wounded which is velom attended with anything more than feetering; When the Tendon is prich devery thing must be done that can be thought most effecte ab to take of the In · flammation and Pain, if mortified, the arm must be opened according to the Course of the Sheams and dreped according to the trethod of those proceeding from other Causes; if there happens an aneurism you must proceed by laying open the arm and taking up the abory on each dide of the Wound; but if the artery has not branched offabore that part all communication will be cut off by tying up the Ontery whereby the inferior part must inevitably mortify, amputation then is theronly Revourse: The Soint of the Hone is supplied on the Inside with a large one reial Sigament to heep it from Dislocation and with Glands to se rereter alubicating Liquor; the Patella is covered with a Sigament which being broke is often taken for a Tracture of that; thellse of the latelle in to defend the Soint in kneeling The Musculew Plantaries of the Log arifes from the Detern allowing of the Tomwo being only a thin Tonoon its whole Length, it is ine latich for if it stietento it could berof no Use, it und close to the Gastroenemius and is inverted with that, it is sometimes broke from whence proceeds Samene frand Heakness Foreturn to the abdomen, a little below the Caliac, and superior Meventerich arteries, go of the Emulgents and Spermatiche; pret tynigh the lowest of the lumbal Vertebra go off and ther Mesente ruch and then the docta divides into the right and left liae; the

Uneters go from the middle of the Ridneys over the Iliac arteries under each of which runs a Merver to the Thighes; when a Stone gets into the Ureders and distandust, it comprefers this Nerve as it does the Proas Muscle which inflaming occasions Inflammation in it and fain and Rumbnefo of the Shigh: The Britoneum is in its whole Substances attacked to the Juneus of the Blader, and by its Duplicature on Reticular Substance to the Fore part of it, and thus it is deparated from the abornen; the some times the whole is continued to ther Fundew only; this teheular lab. whance was made an Objection to the high Operation of cutting fory Stone; the way was to inject Barley Water into the Bladder till it was fretty much distended, and then to make their Incision into if Bladder above the Ov Pubis, the Consequence of which was, the Mine afterwards run thro the Orifice and instructing itself between the Bladeer and Reticular Substance of the Peritoneum was expana wall in the Abdomen, where putrefying it inflamed and mortified the Bowels; but this might easily have been avoided, as the Bladder is a fixeus which will admit of prodigious Distention, so that had they injected more Barley Water into it they would have procued Goom enough for cutting between it tech and the reticular Sub stance; and then no Juck Expansion would have happen a but as bad would though it was not thought of for the Matter which must run from the Hound not having a depending Orifice would have instructed theelf into the theticular Substances longing in the Groins and there have produced above fees spreading in Simifes a Strong Sigament runs from the Seum to the Os listin call Ligar

mentum Pouparti, the Reticular Substance with the Spormatich spop was here under this Ligamenty where it sometimes happens the Bow. elspush down the Seritoneum with them and make the Homia finalis; Cousties might be applied to make a radical Cure of ital for the facts are reduced, but Regard must be had to the Courab Chery He will now take a few of the Situation of the Contents of the Thoras, on each Flogthe Hibs levin Contact with how Bladders, between em in the Mediantinum forme from the Pleura which adheres shongly to the Ribs between them and the two Bladders lining the whole fairly, at the lower fort those two Bladders or Lobes open from one another leke the Stoof of an Ox for the Lodgment of the Heart; the Lobes of the Lunge should touch the Heura in all its parts both in Inspiration and Expration, for the Lungs do not contract themselves but are com profed alternately by the Contraction of the Thorax: But in dead to wies the Lungs soon puterfy and generale the which getting between them and the Meura have madersome dony their close for fact . The Position of the Sheart is exactly horizontal with its Bafis lowards the Soina Down, and aber Towards the 6th hib, its right awrice so emmediately configuous to the Diophragm, the common Opinion has been that it was pondulous from finding it so in dead Bodies! but that was because the Diaphragm was removed from its hue dite. ration, but if that be builts to its proper Position, it plainly shows the Natural one of the Heart:

Who lower End of the Renum between that, and the specialist the sum which adhore to it is whole length, upon being reparated there is an Oppearance which has made some believe thatter was leigh

There, but that proceeds entirely from training and tearing the lier num from the Mediastinum

The Pericarorum contains a watery Liquer which in dead todies in red dish, its Use is to keep it moist and from adhering to the Heart but upon Inflam mation that will happen; it has three Membranes, the internal one fine and smooth the next is inclass. - tick and arifes from the broad interior Tendenous Substance of the Diaphragm, it is inserted into the Gurrature of the Corla, the Division of the fulmonary artery, into the superior tona lava near that of the Vina agy gos & into the Kilmon any terns above the Sphinetow; the External foat in the Meticular Substance from the Peritoneum covered with Sat: It receives to fiels from the Mammillary, Bronchial of Rugh & Merenich Ocheries: Bos wides that of enclosing the Freat, it has another great live; it was neeflary to provide in all park against the shetching of the Muscles, but in aparticular thanner that of the Heart, but the Pericardium being connected to the Diophragm it would som that when that is complanated, it must full and stretch that least, but that part by which they are connected together being inclustich; and at the same time the Invention of the Vision on who being in the to feels above the Heart, it will follow that when it is full by the Diaphragm the action must besupon the Cota and other superior topicale and not upon then Heart; by this the Diameters of the as a centing topicly, which perhaps is one Cause of Faintness from Fasting for such general Feel a Repure as it were about that part There is a to frage somewhere in Orelows where he denominates a Schinnous Liver from the Diaphrogin and Thorax being drawn

down which indeed is visible to the Sight for the crucial Ligament of the Siver is connected all along to the inelastic Substance of the

Diaphragm.

In the tis new we've the greatest Quantity of Sat in old leople but inyoungit is lodge about the truscles, this is an excellent hovision in Nature against the Clerimony of the Fluids which encreases with age: lohal I would have you observe now is, that in the nature State of the Thorax there is no dir between the Lungs and Meura; but they and the Seart adequately fill it up; as we grow oto the Lung grow dorhar from a greater accumulation of Blood -

Lecture 15th do 16th

Of the Organs subservient to Digestion We

The Liver is a large Gland situated in the right the pochonoring rum, it is connected to the Diaphragm by a broad orucial Ligar which extends to the Spine, thee over the Stomach which being Distended raifes the Liver to aborizontal Besthor, when it is on the it falls down again to it's natural perpendicular one, this ought to be taken Solice of as being of some Consequence for when it is raised in this manner the Sunous of the Gall to ladder becomes 4 most depending part of it, when it falls again the contrary . The an serior and Superior Surface is convax and is calle Gibba the poster and inferior is concave, where are two Eminences one on each Sion the lina lava callo forte, the Uncients gave them this hame from imagining the Chyle was brought hither to be song wifed: Underthe Vena Porta at its Entrance into the Liver less the Some Cychicus, just about the middle or rather to the left is the Suleus for the tour, on the left Side the Kena Porta is the Insertion of the Ligamentum too shindum by which the Linevis connected to the Havel and ows pended when the 18 day is inclind; this as well as the Guille Ligament is very strong to prevent the Liver's being reparated from it Blood tofocle by jumping ovother vidden Motions in which the animal would inevitably bleed to Death; it Sunice is smooth and fine coming from the Perstoneum: The Blood is brought to the Liver in a particular manner, Il being done by a tein, for the Caliach, mesenterich and sple nich Ortery have upent themselves in Ramifications, the " Samach, Intestiney and officer, the him of these sever ab park taker up the grof Blood rolling as it is of the greatest part of its Lymph and convey it to the tina loster, here the Asmachich Splanich, movembrick to Hamorrhordal time all unite the latter emplying itself cometimes into the mesentarich but most commonly into the Splenick; and with he gard to the Hamor how internal I mean I am for from theating they

are owing to the fune of the faces or perpendicular one of the Blood, but from a Shieture order on won the time Bota on from the Bloods being brought faster or in a greater hantity than can readily be admitted into the Liver; and if we com ider its

Proferely wermust think a hetarda hon to its Entrance may

casely happen, be fire we may observe that most commonly those who are houbled with the Distemper have cholicky to ins whi warrab Inflam mation from the vame Cause, and Hyppocrates ways that Hypochondriachs are relieved by the Hamor hords, by which he means such as have kins in the Hypochondres; and such are often melancholo.

The Liver is furnished with Blood for its own Mour ish mont from the Stepatich artery; We have seen the Vena Porta receiving its Blood from theweveral Veins of the historia let us now followit into the Liver; as soon as it enters it begins to ramify, which it continues to do into still fines and fines topsels till it forms the Penicelli, which are several of those minute topics lying together in Claster vo as to appear like a fainten fencil, from these go of the Por Biliane which offerwards uniting form some of them I Quelus Sepations, and the Duchus Conficus joining with it mand the Luctur Cholesochus Communis as is commonly said, butil cantallow it any Robriety; by the Side of the Duches Cholidochus rund a large nervous Plexus inverting itselfinto the Liver low the left: I said the tena forta at its extreme Ramifications made Pencile, vole howise does the tona lava, but by injecting both they confuse one another and appear only like a broken Lump of Hasi Those of the latter begin where the other ended running directly crofe the other topols returning the grop Blood to the Stear ? The Hopatic actory Vana Porta Vitori Beliarie accompany one

another throughout all their Progress ared are all contained in one common fapoula, call after Glifon who was the first that took Notice of it; but to speak more properly they are only conrected logether by a Resicular Substances we em go y Lymphatiche: Near the Porta are several Lymphatick, Glande, receiving In the Sine Cycheus is the Costis Tellis which received the their tofvels from the Liver; Bile when the Stomach is empty, but when it is full the Duode num is the most depending Orifice at which time the Bile will run into it thro the Duches Choled oches; in the Duches Cysticus is a spiral talve very visible in a Lion, and just by the Gall Blad der is a circular talve; so that nothing can pape from the Duodenum unto that; the Gall to ladder has its outward Coat from the Peris toneum, the internal one is very vascular, and by this it seems intended for the Secretion of a Fluid to defend it from the acrimos ing of the Bile; Irather think this because in an Ox there is over ry large Secretion; there is another fine reticulated Coat full of lets much like Honey-Comb which seems to be intended for the vame Purpose; Freezives its arteries from a Branch of the Hepatic) and are call deferia Cystice genelle: andomists have beened. Preedingly puzzled to find out how the Bile got into the Gall Blader, and hone ever explained it before De Nichols; but before Supeak of the Bile it will be necessary to examine the Speen She Spleen is a twee of various Shaper, strated on the left lide of the Somach, having its Orteries from the Coline which camify

& make Kencils; the Blood is corried by the Splenich tein to the Porta from these arteries go off small the les to the Som ach calls Vasa Brevia; the Spleen naturally is conneited only to the Stomach, but you will find it adhere sometimes to the Parietes of the Moor omen or Diaphragm but this proceeds from Inflammation; the general Opinion has been that after the Blood topeloof this hour had made all their Ramifications they throw themselves into letts, but this appearance proceeded entirely from their manner of presparing it, for their Method was to wash it in Mater, rub it, and then inject Mercury, by which Treatment they love the Vefels one from another which was frequently do nes too in taking it out of the above emen, not paying Regard to any abhesion that might happen; the right Wethod is to inject it in the aboomen heeping it close shut, & then the Pencils will be very conspicuous whether you take the Kinon artery, and they are finer than those of the Liver because the Blood here is not so grob; the Lymphatichs are largest in fresh Subjects which go of from these Pencils, substracting a great anan tily of Lymph; the Stomach too abounds with these Lymphatiches as do the Intestines:

All this great apparatus is intended for the Secretion of the tile that the to look may be prepared and earried sufficiently grof to y Liver where it is distributed by the Porto; tile it arrives at those minute lencils, where it farticles are bought into a close Contact not only with the Lides of the toplets but also with one another, from the

Vencilings of the toi to diaring in which the tolling carried yet too then or soo much related with Lymph, a sufficient Buantity of which witheness who tracted, file it becomes a proper long where to perform the Office in which State it falls through the Duches Hapaticus into the State to France a corring to the one or the other with the Manual the one or the other without the Manual Separating Ocifice):

Some have fired an Experiment by cutting out, if he way if place of a Dag to wow hat feel would have in the lower the house requires was that he great worse were from the low great direction to precept tate Digestion in the stormach, he became more valacious from encread of the semen as the Blood became more valacious to Baticles more instating; from this too great Division and different which in of the Blood it became more and more a crimonious from white on of the Blood it became more and more a crimonious from whence he grows about, and leftous, and it is reasonable to suppose its Secture should be quickly too much destroyed, any longer to support the Life of the Unimal:

Sheek ile considered as an Exercise the will appearate beabour littly necessary it should be verteto from the Blood two are not to imagine as some haves that the Lever has a list Goomahis, or to imagine as some haves that the lever has a list Goomahis, or to work of converting the Blood into Biles but those believes that is cless are actually precedent in the Blood before it arrives at the Liver; and we seewhere the Liver in inflamed, industed or its the bear in any trong obstructed so as to hinder the Secretion the Body becomes difeased, first grown listly and heavy, Thirst and winted

appear next, then Tever and faundice which unless prevented by pro sper Help, end in the Death of the animal, because these Salk are occumulated in a quater Proportion than he can bear; But though these bad Hock arise from the Bile Nature does not fail to make it, neither does she throw away when she has be bard it, but makes that Use of it which a shilful (hymist does of his Serie, reserve ring it for vome future Operations; and in these we whall find it of very great live; 134 Chymical analyfus it appears to be a look, and it has all the feets of it, for it incorporates Oil and Hater, w in many Cafes proves a powerful Detergent; In the Body its of fech as being alcalescent are that it obtained the acid ofour the liment, and makes it agree able to the Animal Fluids; as a perotion sing then shown it attenuates the tiscosities and Glutinosities of the aliment; as a Shimulator it protectes the Faces down the In sectiones; for in Soundices where this animal Soup is deficient the Body is covere, unless after a length of time whon sometimes there Sappen Diarchans, but this proceeds from the describes then predoammaking vo much as by their Stimuli to produce this Change D! Hoodward, a very ingenious than was strangely deceived with the sect to the Beliow Salte, for her imagin'd ale Diferes had their his efrom them, so that he always gave acids or Diluents to correct them, Oils to obtand them, or Tomits to carry them out of the Stomach, and it was always observed of his Patients that they never couls go to Stool but by the Help of Purgatives: There is one things have to ze sining you, and that is always to examine ther Pools of those that

have the Saundice; for there are two kinds of it, one where the bile in deficiently secreted, and the other when it is made too fast in the Constitution; in the latter lase the Stools will be always yellow and the Patient laxative, twould be quite wrong to give Steel, Soap or Saffen in this lave which would infallibly encrease the Defease; but you must give Diluents and lenient Purges to carry off his many of the Bilious Salts as you can benjoin an acid Dut, things of this kind are then shoot proper; but if the Faces are white they will be hard, there Bap Seel and other Medicines of that Tribe may be given with a happy Heit: The Stomach is a large Membranous Bag vituated immediately under the Diaphragm closely connected to the Spine near the up per Orifice; when it is emply it les penoulous upon ther frine but being fill its Sundars is brought circularly forward brais o: The Situation is as nearly as populle in the Centre of the Body, 4 all the facts might equally be in commoded and relieved in the dif Sevent States of Inanition and Repletion; thereper Difice wis the left, is call a Cardia, the lower and right Pylorus, which last pra perly speaking orgnifies only something which prevents any thing from paling from one (with to another; the Bottom part lowards I left is calle the Jundry, the curved part next ther pines, is the Si = new; the Gula enters the Stomach in a direct perpendicular, so as to make an acute angle with the Romach when fell &, at it Inhance are elliptic Tibes which close it. The Stomach therefore may be

filld so as to close this upper Orifice entirely which it gradually does the more it is distended; this is a fires my lance of great once rquence and ought to be attended to; in taking tomits the usualway is if the Brown does not prove sich, by drinking at int or two of Hater, to give him more and so on persuading him to drink as long as herean to make him vomit; but the Person may drink so much at last if he can't vomit, because therepper Orifice of the Stomach becomes quite clos's, and in the lase there is the greates Danger of bursting the Sto mach, this is not mere Theory but what has really happend : Baron Waavenar having eat some Duch with a great deal of Gravery, grew sich, after which he drank some warm Water to unge atomiting, this not having the desir's Effect he drath more, and so on hill at last upon a violent Efort to vomit he felt something crack with sin him; growing then extremely bas Boerhaave was vent for but nothing would believe him, in short he died in asmall space of time, upon opening his Body, the Spavey of the Duch was immed rately smell, and searching farther they found his Stomach ruptured on the hinder part of it; Let this therefore be a faution that your las tients drink not loo much, but sufficient to delute the Emetick The by low in Man has a ligular talve made up of the Dueplicature of the internal foat. The External Cat of the Somach is membranous from the Perisoneum; immediately under it is asket of longitudinal siones and then another of circular ones, this is call its thuscular out,

embracing the Somach all around; besides which there is another Set of Muscular Tibres pretty strong which run in the Sinus from the farora low aros the Pylorus; the best way of howing the whole is to immerge the Stomach in boiling Hater which was Willie's method: Between this musculor and internal villose Coat in the tascular; the Blood tofiels entering the truscular Gat ramify, and balo through one Lamina then run a little for there and pals thro the other, they now come at the reticular Sub-Wance where moveulating provigiously, together with that they make this varcular loat, this is what has been called the nervous: the next we come to is the villose foat, maich may be call an in= sternal Lamina of the Vascular, this Coat makes the Ruge obeverved in the Somach which are not permanent, but entirely disappear when it becomes distended, the when it is partly filed only or the Contents are moved from one Vides to another, they are To be seen sometimed in one part sometimes in another : The on conculations of the vascular foat are absolutely necessary to keep up the weulation, for when the muscular Fibres act they would so comprefe the Blood refuels as to stop the Papage of the Blood, and these being in continual action the Donger would bevery great. The Tilli which give the name to the tillove lost are llusters of Blood: Hopels ramified together with others that are too fine to admit the red Globules, in the humane Subject they are very short, in the Ox large, and in the Deer much longer, they are properly pich what vecrete the Rudum Somachiale . Before these there is the highest heason to believe there is cuticular out which covers y villove, both because it is seen in other animals & because in Tomiting and Dyventeries, Films are offen discharge; but it is difficult to demonstrate it in humans Subjects because they no vooner die than Suhefaction begins, and being exceeding fine it is soon destroy and wash away, but from Comparative anator my from Phanomena in Defeases and Reasoning upon these Phonomena we have just breason to conclude there is such a lat. Where it is conspicuous we see it adapts itself to all the tilli of thet love out, sheathing them as it were to defend them from any derimony in the Stomoch and and to moderate the Secretions; the Book Stomach of the Ox is covered on both Tides with it: at the Cardia are some Lymphatiches Glands; at the tylorus arelland some in Clusters Some solitary to secrete a Trucous for the Le fence of the Palsage: On the Backvide of the Somach is a Gland call Pance as com enceted to the left Side, throwing it Juice into the Diodenum, but it most commonly enters the Duches hole ochus first, ih its Duct is a Value to prevent either any Return of it, or the Influs

is most commonly enters the Ductus Robisochus first, it is it Duct is a talwe to prevent esther any Preturn of it, on the Influo of the toller; the Ductus Pancre about reaches from one of the toller; the Bile entering the Ductum just where the Pancre as to the other; the Bile entering the Ductum just where the Pancre as to the other; the Bile entering the Ductum just where the Pancre as to the other; make mother as the fan with a series about it, but I ve nothing material in it; the fan sereas is a long tomerate I land made so to admit to the greatest

Shetch commensurate to the greatest Distention of the Stomach. I am now come to consider the Intestines, the whole taken Together is a longfanal making several Hindings and Twin. intended for the Separation of the nutritions Parts of the ali ment from the Jaces; they are usually Sivided into small Harge, in the former is the Bufine for of Separation chiefly performs, in the latter the Remainder is taken up and theres. ces are expelle. The Length of the whole is various in differ & Subjects, in some 7, in some 8 and in others of times as long as the whole Body, this Differences is quite unregarded by Phy vicians but it is certainly constitutional; and we know no Difference of Constitutions but what is from the Structure of some of the Barby; and those who have the longest Intertines will reparate the greatest Quantity of Rubition from a given Quantity of aliment:

Their first fast is membranous from the Bestoneum, you remember the Briten um running double from the Binemades the Messen under the membrandes of the external Cat, immadiately under it are two Strata of Tiber, one low rejetuoinal, the other Recular; But between the external Whis muscular foot, in ful Subjects lie the cellular membranaceous last of fuy whis which is frequently the Seat of Usuches; the toscular foot or forms like that of the Somach, with the warme frequent Invoculations of the Februs, and indiverse parts of it are veveral lenticular Gands, vometimes they are

seen influsters, and are then called aggregates, otherwise they are solitary; within the varcular loat in the tillore; whose tilli are to be considered as the Secretary Organ of the Sluidum Interti-

male; The Sims and arteries of the Intersines run parallel to onew enother throughout their most minute framifications . Me have the vame heavon to thing this villore loat is cover to with a while as well as that of the Stomach; for broad Films are often discharged with verous Sools, which had it been owing to Mers would have been purulent; it two is here likewise to quand the lilli from any Eler imony and to moderate the Secretions; for you we when the lyticle of the Shin is removed by Blisters you have a great Discharge whon it:

The Durdenum going of from the Pylorus turns round to if left geto behind the Mesaraich Veine and returning forward sends of the Sojunum; it has nothing remarkable init exreept theinhance of the Ducks, there are some source pages but not considerable:

The Sejunum is the next Intestine withated in the foresport of the Body, here the Juga are very remarkable, which as they approach the Sleon grow meanwiderable again and in 4 great Intestines entirely disappear; the Unatom ists of last age call's these, Faloula Conniventer and Boerhaare attributed a great deal to them as retarding the Sapage of the Chyle, for when the muscular Fibres acted he imagin'd they were vet up and by that means retarded the fourse of the Chylests so afforded more Opportunity for the Lacteals to perform their Ofice, calling them circular Valver; now there is not one Hord of this true; Instead of being circular they are spiral & tho when dried they seem capable of making hesistance, in thew ma: Tural Mate they are entirely flaced membranes, and if you in z jet Water at either End of the Inter hines, it will meet with no Obstruction but freely pass from one End to the others, and he impossible the murcular Tibres should set them up as will eavely appears by viewing them; some take a turn and half other not above halfa Turn; but it may be as his what is their Use. The Langth of the Intertines whould be considered with hegard to their Orifice, what it is internally bo not externally, and these Juga are of no other Use but to enercave the intern Superficies, and this they do so much that instead of 7,0, or 9 times they may be 15 or 16 homes as long as the Body, and this was the Design of Nature appears from the great Quantity of tills & Sacteals 4 areveen in those Juga; this is the Reason the Sejunum is als ways empty; This Shucture is very remarkable in a Fish call the stay whose Inte Aine externally is not above a foot long, but that Deficiency is made up by the great Number of these

There is nothing remarkable in the Skon which is the next Intertina only that there Jaga begin to disrpear, the small Intestines then going into this great ones, the first we come at

is the lacum; at their Union is a triangular Ligament to viength sen their Invertion, the Manner of their Cophance is by doubling Heats of both whereby they form a double Valve, this prevents the Faces returning into the small Industines, but to have a better I dea of it, observe that the Ileum enters perpendicularly into the great Intertines between the Locum and ofon, braced by the Ligar ments all around at that place, whereby ito Sides are prefit together, like something entring the mouth of a Bottle: The lacum sends of the Openoricala Vermiformis, the Use of the we know nothing of; thortgagni in his last Works look grains to make it believed it was formed on Rurpose to be a Nions for Horns; but it appears very inconsistent, that the Deity whould create an animal, & within him hovision for others on his hose to torment him; and indeed after her had vaid all he could to wheny then his Opinion, he veems himself to doubt the Frath of it; 0= there have imagined it to be a freeeptacle for a Huis secreted from the soletary Glands, and that the Use of this Fluid is to dielute and voten ther faces, this was talvalva's Opinion, who e wen haces the Fibres from the Gestum hither by the action of w hevupport this Fluid to be fored out of its the sidence, but it seems very improbable that parts should act thus upon one an. atvo great a Distance: In it are a great Number of volitary Gland. In Fature it is a gradual Continuation from the Intertion; but in new born Poloren, but in all other Subjects it goes of vie denty, becoming small; in Fatures of all ages there is no great or small

Intestines but all are of the vame Pargrafs: The Lolon bowing the Locum makes it Progress up the right live rule it falls down to left live till it falls down winding into the Polonic forms the Rectum; the larger Intestines not having the Denefit of the Omenhum are thechy beset to appendicula ad pose verying to rother believed, and wheath the too acrimonious particles of the Faces

The Rechumat its Verge has soo Golliculi where are Glands that secrete a Mucies for the easy Expulsion of the Freez; to is commonly said to be done by the Contraction of the absorminal murcles. All the Intertines have their tefels from the super and infer mesentericks, besides which the Dudenum has othere from the Gashiche, and the the chum arteries from the Means whose kens return again to the Shar tiens, these are to be ob = vervo upon the account of what they call the external Hamor. schools, intheir tapage likewise they afford Lodgment for ab: feeles and Tistular; The Mesenterich line arteries Lacter als & Herver all run between the Duplicature of the Mesentery to preserve as well as to connect the Blood lefels against any Shocks which might indanger their Rupture: The Mesentorick Vein and artery inoxculating make the Duches arcuatististismed. less to dwell any longer upon these parts whose Structure is so easily known at Sight

The Lacteals are derived into those prime generic & 2 fante which latter being the largest are made up of the others united

togothere, they compty themselves into the Receptaculum Cylinhich lies under the Diaphragm, from whence runs the Shora: scie Duct between the the Aorta & Sena Azygov, then creeping under the Aorta it afterwards enters the left subclavian lien after dividing into two or three Branches, one of which some: wimes goes to that of the right Stai

With Regard to Digestion, all the Opinions which have butherto been offered may be reduced to three; which are avoid coen as (elfus; who has given us three ways by either of it he supposes Digestion may be performed, whey are Inturity Putrefaction & Tresion, and the all three are concern's yet un fortunately the selfentlemen have only thought on one; each taking that which best placed his Fancy: With theyard to Fri turition the Contenders for it have considered it in the than it is performed by Birds, who having a strong muscular Store after having hush & their Grain swallow it down, and after it some unall Stones, so that the Grain being here macerated by a Sland & hiturated by the small Shones it is at last reduced to an Amulo ion in the Gazzard; Serpents of all kinds swallow their Food whole; where is no Friturition but But efaction only; the Rattleshake no vooner sees his Prey properly viter rates for him, than he gives him a Bite, then lets him alone a lettle while; if he does not die he biks him again, by this the tion he prefers out of a bag on the Side of his Seath a strong putrescent fluid, having done this he swallows the Raydown whole, impregnated by this Fluid, its Parks gradually difwolve, separate and pass off some for Nourishment others for Exerction: The Ruminating Unimals have four Sto mach, the first is called Honey comb where are many Calls loaded with Blood Vefels, the second is call & majus, in Latin, on double - tripe in English being divided into two Cells in which are many large Ville; the third is call the Book Stomach from its Follow lying one upon another; near the upper Orifice is a Value, that when the Tood has been masticated and swallow'd into the first and second Somachi where afterlying a while by the peristaltick stration of them it is thrown up again, when being re-masticated it is swal. Loward a record time; but the Value at the Orifice then closing it passes down into the third and fourth Homaches dilutes, Evo to the Intestines: as to the Meavon of the talves thus closing the vecond time and not the first, I must refer illo one of the vital ach which the animal is inconvious of but certain it is that it does close the second time of swal clowing or else the aliment would pak the vame way it did at first; and if the aliment did that ba for into the first and well

Somach they could be of no use at all : Pyerus who wrote a Treatise de huminis & huminantibus had no Notion of 4

Use of this Valor: Hest manner of Digestion in these set animals I now come to speak of that of the humane Species, Os the Oliment is dividing by the Dentes Incisores Deanini, and ground by the Molares a great Quantity of Salwa is prefit out from the several glands in the Mouth, in the Chechs and Tongue, and is mix'd with it; the Sonsile then squeeze out their lubrica. ting Juice to facilitate its Papage, the Shyroid Gland Chewise affords the vame help, for the mixed make being driven about by " Oction of the Jonque and Jauces, the Unula hindering any thing from getting into their Papage, and the Glottie cloving the Windfipe it is forces down the Laryne which is pulle up by the Cophalo Pharyngeus, ther Thyro- pharyngeus then closes upon it, and by the Cartilages moving one upon another, it is profes down lower to lower thro the Gula into the Stomach; the Elliptic Tibes cloefes the larder and which up the aliment as in a Culinary lefter, this made D' Drake compare the Stomach to Poin's Diges her; tout in this great Ofice there are more things to be considered than the mire Form of the Stomach, we have seen a great Quan hity of Saleva is midd with the Tood in Machication, this da eliva is putrescent and saponaceous, capable of mixing heters geneous parts together; the Stomach itself is vistuated in the gr

est Heat of the animal, vurrounded by the Heart, the Lunge, the Diaphragm, Liver, Spleen and Intertines; so that the spentar neon Disposition of the aliment to Sutrefaction being a fine Too by this great, and the Kitrescency of the Saliva likewise any mented by it, a Division and Separation of its Parts must need varily follow, and the Som ach being prefor continually upon on all Sides by the action of Inspiration and Expiration, and a large Secretion being at the vame time made from the litti, the Contents will be shifted about from Side to Side mixed and delute, till at last the finer parts will begin to run thro the Blown into the Intertines, the whole gradually getting this at it becomes sufficiently communities; and Mahire veems particularly care -ful that no thing whould pass here unorgested, that is not agree able, or which does not force a tapage by its own Height; for if a terson swallows a Shrimp or a locable and it makes with or uneavy, the Digestion ofil is suspended, and sometimes a Day or two after is romited up entire): The aliment now being well mix with the Gastrical Third is but into the Intestines where Digestion is compleated; the Pancreatic Juice which seems to be only another Salival one; of a higher Degree of the histy mests there, the Bile too by the convenient Situation of it Bladder is now pour'd into the Duodenum, thus it becomes diluted & neutralized; the perintallich motion of the Intertines carry it along, or rather vermicular motion for that w properly the Thing, at the vame time pouring out plantifully from their fills

a Fluid for its farther Dilution especially in the rejunum; it is now fitted to be taken up by the Lacteals; the finers part now being by them absorbed, the lower it goes the more foculent it grows, if larger Intertines now receive it and by their Lacteals abstract what nutritions parts remain, the Rest is accumulated in the Rechum, till by its Quantity and Putrione for it becomes a Muivance to the animal & then it is expell's; the their seems to be some thing more than the Weight or Stimulus of the Faces to oceasion this, as the Desire of doing it often returns at a certain how? I know a Gentlewom an who had this Inclination of relieving Nature constantly returned at a certain hour every Day, but go zing to board in a House where were ser Gentlemen, as she ef not go to the proper place without being seen by them she restrained the Motions for a whole Fortnight, but every Day at the hime whe had accumuland herself to do it, who had thins about those parts which lasted about half an hour, and then went off ago now if this Pain was oceasion'd by the Height of But worky of the Trees, instead of going of it would have every Day on creat with them; this seems therefore rather to be an Oction of the anma, a Method which she takes to relieve the body, of what would be injurious to it, which we have no Consciousne fo of

Lech

Lecture 17th

Of the Urinary Organs & The Hidney are two Glands situated one on each Sidery Octa; just below the Diaphragm; it has been said the left lies higher than theright, and the Reason given for it in that the Liver might not be prefit or any way injured by it. But the Liver is not at all in the way of the Ridney, neither is this account true; the left smulgent artery inced sometimes page ver of higher than the right, but then it always runs with Obo liquity downwards, and if there ber any weal Difference in this Respect, tis the left in the lowest:

Their Sorm is various in different Subjects, in Obers Spans they are conglomerate, and in Tatuses they are wemidwided de it were into several Pices, but in Philoren of a year or two de, this appearance antirely vanishes; it seems here intended that They might clude the Force of to four they are hable to in co

The Clorka descendens having given of the Calia VMesen seriet superior acteries, send of the Emulgento which on thing the Kidneys, so ramify as to make a great part of thew Silvance; the Blood is returned again by time of the vame Name, but because the tenalaba inferior, runs on the right Side; the left imulgent tin has to crof the Spine and Cortato get into it, upon which account it is much longer than the

right; these Keins are vituated deretty upon their arteries; these tefsels have been spoken as volitary, but there are some stimes two Branches, and I have an Instance of six albrun= ming distinctly out of the arta into the Ridney and each has likewise its correspondent tern, but whenever thes is if (ase they are always so much the smaller); the arteries spread themselves in the Ridneys in all Directions without anastamoving any where; but the time have great anastor smoles and there is very great live arising from it, for the Blood being robbs of a great Share of the Lymphatick bede crow parts the ficulation of it must be impeded, but the kind so frequently communicating one with another it has the quater back to move in and its Motion is at the same hime

Spationey be ent through it discover two different thinds of Substances, the first made up of Branches of Blood to held in called the cortical part, the inner part is hebelars, beginning where the lefull go off which secrete the Ulrine; and whatever Difference there may be in Michorey as to their outroard Up epearance; in their internal Pulcture they are the Name, all having there what is efectial to the Office for which they were appointed; This Azuchure denominates the Kieney to be as invoise gland; the looker then throwing of this hebelar Substance; it runs directly white to the Gelow, just before

comes thithere, it makes the tapilla Renales situated at a Distance from one another in Humber twelve: at the extreme has mifications of the asteries in the Cortical Substance are little Globules made up of the lateral capillary Branches all being of an equal Size hanging somewhat like Good berries on a Buch, they are call o corpora Globara or Crypto: Ruych absolute by denies the Existence of these Bodies, for says he I have so. wered indeed a Pampiniform or ragged Uppearance, but when the topich are well fell this disappears and yourse a fine to mentum; but the lase is quite otherwise for the more the topuls are fills the more apparent they are : Winslow indeed veems to be venille there are such Kodier, but for fear of being drawn into Betoversy does not lare to acknowled go it and hums it off by Jaying they may be transverse Sections of Arteries; but this cannot be; for then they would not be round, neither would they be all of a Bigness; but bedides they are seen as blentiful upon the Surface of a Howe's Stieney as any where, which must but the Matter out of all Dispute : From these arteries on the one Sand go of the Subul Belliniani, and on the other go of the Lympha-Tiche bliens; now these teins mosculate and at the x x hem. the have that ragged pampin form Up pear ance which was mention's before, but this is quite different from the other The Subuli Bellinani pale directly in sheight Lines from the con Freah Substance into the Pelows and when the Kidney would

injected the Max will pals through into the Pelvis; from these as rise twelve Infundibula which uniting together form three laanals that enter directly into the teldis, these cannot be distin equished so well in fresh Subjects; The Pelvis sends off one long Tube which runs into the Bladder near the Nech, called thellrestero Such youver is the Setuation of the Pelvis Infundibule & the term which surround them, that whe never the latter are for much distended with Blood as is often the lave in plethorich lone restrictions a Suppression of Urine will happen; In some Subjects half the Pelois hange out of the Kioney, others shall have two im Itead of one, so that six of the Infundibular empty themselved into one felows and vix into the other; two distinct Balsagestell also in some run from one Pelvis while afterwards unite in Their fourse to the Blader: The Polow itself is membranous composed of an adipover foot which is external, another which is vareular and the third is villose lind with a cuticular one which is very obvious in Horfes-The Under famo out of the warme looks with and from 9 Pelous run downward into the Bladder one on each Fide, pop! ring the's the first Cat of the tolad der they devand a little lower and then perforate the second, and continue their Course with go Obliquity; there are a det of Tibres just at the Nech of the Blads ider running repowards howards the Insertion of the Uneters; Morgagni calls them constrictores, but if they are so they can be of no Use to the Ureters as he supposes, neither have they was

reed of such apristance; but the Bloder having a lovity on each Lide of its heef, by the Ladgment of the Uniners very leable to have Stones form'd there; these Fibres may act so as to le fren these lain ties and thereby hinder as much as possible the Growth of the Stones. The Ridney have some Lymphatick Glands which receive the Lymph from the topele that run from the Tubuli Bellinian; Befides these each Ridney has another which is call bylandula Benalis; anatomists day they are of use before Birth but not after, to which they aid they are bigger in Saturis than in abult, but the Truth is they are biggers only in Proportion, for after Birth they grow the not so fast as the Ridneys yet so as in abults to be twice or three as big as those of the Salus; We can't determine what is their Use but they have the Oppearance of Sympha-- tich Glands; some presend they have a Sinus, but that is really nothing more than a tein, and the Exerctory Duct could never be found with any Certainty: The Trioney are covered with a Stelicular Substance from the Peritonedon loaded with Sat which verves for their Bed, illihe-

the Britanes on loaded with Sat which verves for their Bed, illihe wisheheeps them warm and defends them from the Bermany of the Utime; besides this they have a proper strong inclustiche last adhering to it serving to heep all the parts close to one another.

The Peleis itself is not vas cular having no more Blood of wels than what are sufficient to nourish it yet were that largestamourhages often happen from these Parts, and that critical

cab Determinations of blood are forced hither, and critical Aamorrhages may happen in all parts of the Hody, as we find in the History of they rick; even the Tingers are some stimes chosen by Nature for a critical periodical Evacuation of blood, not that the topical are larger here than in other parts, but that Nature finding the Constitution most adapted to perfamily there; directs the Blood thither:

The membranous Bag vitrated in the Pelvis is called the Bladder, in Man it is largest towards the Neck as thellrine by its perpendicular Situation prefer upon it there and divtends it; in Quadrupedo the largest part is at the Fundus, their bosis stion causing the Urine to lodge there, but in both it has the Shape of alear; to the Tundus which is it part towards the Navel, runs the beritoneum which covers it, the upper and fore part is covered by its reticular Substance; under this lies a Set of must scular Tibres which are call hotrus or Urine, under that is a vascular logt which serves to secrete a Pluid to defend the Blad from the acrimony of the Urine; I judge this to be the use of it, because wherever there are more Blood foreto than are sufficient for the Nour ish ment of the part, I take it for grant (sed they are intended for some Secretion; and how few are suffi scient for the Bufonest of nourishing apart we see in a Tendons which is of no Use but for Motion; So in Inflammations and Deeterminations of Blood to this part, great Hamorrhages may

happen, these topels likewise inosculate one with another; Be-- Ties this Defense from the acrid Urine here is a cuticular loot, which if the Blad der be macerated in Hater and then rubbed genthey you will persoive the Edges of the Cutiele risen up, and his the vame in the Intestines only in cleaning them it is unavoid. sably wifed off; and whenever this Cathappens to be exoded or any way separated from the vascular what great Bain follows. whether there ber Stone or not, and that without any increase a crimony of the Urine: Hippocrates suppofes in the Urina farinacea that there are Ulcers in the Blad der, but I should a there expect matter, and it is most likely that what gives 4 Urine this appearance is only small Pieces of this cuticular (eat; the Bladder is connected at the Fundus by three Sign : ments to the Navel, one is call by some the Urachus, but there is no such thing in then; two pectinalian Sigaments connect it like wise to the Or Bubis: the Use of the Bladder is to be after reptable for a Quantity of Urine that we might not be put to the Inconvenience of a continual Evacuation The Secretion of Unine is a Compound Secretion, for the Blood being brought to the Ridneys it is distributed through all the cortical Substance, at their Extremities are for mid the Capone Globosa, from them on the one Hand go of the Tubul's Ballimani and on the other, the time and ymphatichs; the time return , grafs Blood, and the Subuli Belli man admit the

strows and Lymphatick Eluid; this running towards the below, if children upon the Sibes somewhat returns its fileage, while the lasterabelymphaticks take up the thimmer part are the rest is protein
see to the Selves; and we observe in Difference of the view that have
been subject to the Gravel, little calculous Grains in the troubles
of those Symphatichs next the Gelvis, for as the Union draws make
vertoil, it grows thicker and affords the more Opportunity for
such faithiles to attractione another; these Symphatich libror
there unite till they form larger and larger and empty them

With hegard to the Rerves we ver there are large blowwas aco companying the arteries in their Brogref, but weem not intended for Servation, as that w not in Roportion to their Bulh, for here it is very blunt, astone whall lodge and the Stioners shall loose a great part of their Substance; bloody Urine continues some stimes a long while, and yet no acute, but dule, blunt Pain; they therefore were design & for some other furpose, and that most likely to govern the Secretion by changing the Capacities of the Vefices; and if we attend to the different Changes the Passions pro-Donce in the Urine especially as to Quantity and Colour we shall easily be persuaded that this is their Use: Fear and Surprise are always attended with a sudden and great Discharge of Lym sphatich Urine: People that are subject to nervous Devorders have their Urine often changed from thick and emall Quantity to a great Flux of thin and Lymphatich; this can only happen from the altera Alteration made in the Drameters of the topiels, and when that Stricture tokich these there is in a healthy and natural State apply to the Tubuli Belliniani at their Extremities, is remitted either by suddens News, Dread, or a discoved State of the Body, then must there necessarily follow a great Discharge of thin lymphaticf Uzine without any energy Determination of Blood to those parts:

The Utine is an excrementations Fluid and therefore must be com rocy dout of the Body for a fresention of it would infallibly by Deexpect produce an universal mortification Hippocrater says that a Suppression of theire hills in Days, but I have known it suppress 20 Days and yet the Broom recovered; but this is en -- heely an Uncertainty and depends upon the Quantity of wie andw Salk accumulated which varies in different (gnotifications, his possible a Suppression oftrine may prove mortal in & Days; In the Urine we are to consider three things to Quantity, Colour, and ontents; the Quantity of Unine ought to be encrease when y Secretion of the Shin is diminished, and we find when a ferson goes out of a war in boom into the lot he has quickly a Propen with of making Urine , not because of an Increase of Tension in the Bladder from the (03, but whon the decount of the Conhace tion of the cuticular Pores; in a coprous Perspiration therefore we expect lefo Urine: So in Fovers the Quantity ought always to be in Roportion to the Quantity of Liquor taken in and thever scretion of the Shin, for if the Shin be dry and no Encrease of thine,

we can expect no Diminution of the Tever; the Colour of the Unine dependupon its contents, which is subject to be varied by so many Excumstances that no certain Regnostick can be made from it, only in lace of a high Fever, where if the Urine becomes suddem ely pale and vaturated too abund antly witholymph we may coneclude a Delirium is at Hand; for the Colour ought a livary to be in Proportion to the Motion of the Blood; if the Fever be languida pale Urine will not be of such bad (onsequence), withe ur moud Salts are then forms in a les Quantity; but the lolour is owing to the Oil that is mix'd with it and when the Blood is greatly Driven about and hurried along, and yet a pale Urine, it to a Sign the Oil is retained which being extremely irritating must be followed by very bad Symptoms; Physicians have observed three things in the Contents, the first is what they call the loud, which just breaking on the Surface of the Ur law they say it is not concected, if it breaks a little lower they vay this not duly concocled, but if the matter all appears at the Bottom then (en recession is with them compleated and they have Hopes of the Patiento Recovery; the Matter is no more than this, when the Huids are greatly top & about by the entread action of the left well all the urinary farticles willberromisto, incorporated closely blanded to fether, that they will remain united a long fine after Evacuation, but towards the End of the Difease when west. ing in procured the more volatile parts pap of the Hay, and y

Vefrel growing weather and more lax every Day, the Sall & Earth will atteact one another and pals through in a more grow State than they could in the more tense rigis State of the volios and so will eavily fall down to the Bottom of the Urine by their specifich Gravity: The Colour of the Unine is some = times change from a pale and yellow to a Coffey and black, " Coffey Clour happens from a small Quantity of Blood gett thro the secretory Tubes, which puterfying and mixing with 4 Urine gives it that ( alour; but when a larger Hamorrhage) happens it will be heightend to that of black providing it comes from the Ridneys; Hippocrates vays that black Urine is a Sign of Death, but will sometimes happens without any fatal Regnostick, since it may proceed from a meres tomor -= zhage:

of the Structure of the Sleast, Motion &

The Heart is a Muscle interior for the Micephan and Proteurson of the Blood; It has two Motions calle Systolas Diastole; the Aystolas when the Meart contracts, the Diastole is when it delates; the first is proper to it and ruly active the latter is to be considered as papered; It's Form in Man is that of a Cope cut through its ace, but in Brutes it is quite conical; the this is not always exactly true; for in Clasts that are long and narrow the Seart is long and thin, on the contrary in bood

broad and short hearts, it is broad and short likewise, for that and the Lunge exactly fill the lavity of the Thorax: In Bruter the Het is pendulous, upon which account they have a Longth oftena (ava above the Diaphragm in the lavily of the Thorax: That of Menlying directly upon the Diaphragm, ascends and descends in every action of Experation & Inspiration; its Position like swive is altered by the Julnes and Emphines of the Somach; its Bofis being higher when the Romach is full and lowers when it is empty; but generally it lies horizontal with that part of its Bafir betwist the pulmonary teine respecting the Spine and the Ofoca towards the left visth Rib: It's connected to the Dia aphraym by its right Auricle, in as particular Manner to the Pericaroum, to the parts below the Diaphragm by the descende ing Corta, to the Lungs by the Tulmonary Ortery and Teins & to the other superior parts by the ascending topels, to the Spine Down by the Morta: The right Aurich receiving the Blood from the Superior and inferior tena (ava discharges it into the right Ventucle, and the left duricle receiving the Blood from the Lunge, throws it into the left tentricle; the right tentricler and of the pulmonary antery, and the left the anta. The artarunrning upwards and making alure descende on the left lide of the Spina Dows, in its ascent it is connected to the Kulmonary artery by a Sigament which in Tatuses is an artery: there hono Space, no Vina lava in human Subjects between the right duri chand Diaphragm; in the Inside of this auricle wer observe its

Parietes to be muscular connected to some Fasciculio of Fibres de tack o from it; the lozonary Vien obend into it cover's by a reticus lar talve to hinder the Blood from returning into it, in the in-Jerior Vina lava just below Entrance into the Auricle is a large thin reticular Valve call talvula Nobiles. The Entrance of the inferior and superior Venas are is obliquely, in the first from right to left and in the last from left to right; I mention this be cause Lower finding a Tuberculum in that of Brutes imagind it Usewas to prevent the heams retarding one another, but there does not voem to be any Occasion for that: From the right Auricle runs a Set of Titres first obliquely and then elliptically into the superior Vena lava; I shall explain to you thelise of this Shucture ! the Favercule which I show you in the right (turids) are contined that the Auricle might have as great a Degree of (onhaction as possible with the least bisistance) and this nature has given it by the advantagious Disposition of these Tibres; now the Countage which these have is by being sheight indeed of accular, consequently a small Number of them will have as great a Lonce as a greater Kumber of the other, but being sited upon will make no more heristance than in Robor hon to the Buth of the whole, but there must have been a greater Buth of circular of circular Tibres to have as powerful a Contraction as these have, and therefore there must have been do much a greater Besistance; you must take face to distinguish between enstrumental and natural optraction; besides this, the aurile by this Confusance has a larger apacety: The

The Mipheal Fibres which run from the Owice to the Vina Covar superior seive to contract it when the right auriele contracts for when these Tibres contract they pull the Nows of Went the tofoel clove to one another; now circular Fibred could will can nother this nor two elliptic Sphineters lying in the Juan same Planes without intermediate Fat or Some first Point to act from: but these lliphie Fibres repres bo to duricle a wented by an and bb contracting one third of their Longth will draw the Sides of the tina lava to gether at the Point (o) and these were absolutely necessary to prevent the Bloods requiry taking ag into the tenalava when the Curicle contracto . Some animals have a double late for this Purpose as Grees and Tishes. I'm Nichols considering the Eliptic Tibres was the first who explained the Reason why the Blood die not return again into the Kens, they woo to say the Valves in the Veins prevented it, but that is im popule; for in the inferior parts there are notalves from the Tena lana hele you come to the Slices which is brown by Injection The Use of the right Auricle is to drive the Blood into the right ten truck with a force sufficient to delate it, the elliptic Tibres at y same time contracting and closing the tina fava superior; thele ona (ava inferior in Shut by a Set of menocular Fibres afirsting to

In the right tentricles we observe the taloula tricuspides from them ven deverable name Shings call of Chood a tendence which are mounted into some little Bodies call of Clumna Carnea in the Parietes of the tentricle are the Foramina Shekevic; when if Heart

is cleared of all the Blood you can, whom opening it and equering its Sides, in a good Light you will see the small Drops of Blodd come through these For amina; when the Blood is got into the right Ventricle upon being dilated the Friendpid Valves are rais a up for the Blood to get behind them, the Fives of the Ventrice contracting again clover fon the talver and consequently force the Blood into the Tulmonary artery; in that are three semilunar talves to prevent the Blood returning back, these talves have some Corpora Sofra : · moided which serve to keep them soft and moist by separating a Mucus; there talves are muscular so that the Blood must be fore into the Gulmonary teins which return it to the loft Claricle; this left auxicle is distinguished into two parts, the Socielus into which the Rumonary liens immediately discharge themselves, and the inferior part is call the Churche; but there is no Journes hon for the Distinction; the Blood comes into the Socielus by four or fine toficels, in these thewive are elliptic Tiber, which are of the same Alse as those in the tinalara; between the right and left auricle is a leptum part of which is the Valve call des. stigium Foraminis Ovales: The left tentricle is much thicker than the right as to the Paris roles, because in driving the Blood to the Extremities it has a much greater hesistance to overcome; for this heason there are more Javeicule in it than in the right that the Resistance and (2 traction might be perform & the corner; the left tentricle being filed by the Contraction of the left durice, contracting again in the huen Throws the Blood into the dortes in a Quantity equal to that

that is thrown at the vame time into the right auricle:

The Coronary artery does not lie behind the similunar talber as some have afected, who take occasion to say from that Supposition that the Blood does not enter these Orteries of the same time it is thrown into the dorta; but this would not be the for sequence were their Situation such as they pretend; and if they were always col slaped they would be of no use, yet in this collapsed Nate they are Too owtant to hunder the tapage of the Blood into these Orteries, Twas askange Opinion of Boerhaave's that the Blood could not pass through a Muscle whilst it was in ton haction, this he thought was the lave in the Heart; but the contrary is evident; for we wee the Muscles of any part may be contracted for a long time together without any Obstruction to the (inculation, they we still capable of receiving the Blood and hans mitting it this im the not in the vame Quantity and with the vame Freedom; to man can stand orset on Howeback, and perform a Motions where the vame Muscles shall be in Contraction for 7 008 hours sogether, but if the Blood was stoped or hindered from paping thro them they must inevitably mostify:

The fifted of the Heart are the Coronary Arteries which are the first that go of from the Aorta and return their Blood by I comery friend into the right Auriele: The Herves of the Heart come from the far tagum and Intercovals:

The desion of "Heart is not from the Imperium Unime butis

LIBERTY .

involuntary entreard and decre and by the Inconscial; yet in some Cafes there seems a Sort of Dependance on this detion and the conscious mind, as in great Intersente of Thought its motion will be lackend as if it were baken of from the wital and applied to Officer of great Importance : Hales has undertaken by veveral Experiments to calculate the Force of the Heart, as have others; the things indeed are laborious and ingenious, but his a Solly to think it possible; for the Heart ad a fits itself always to the Quan thy of Fluid it has to move; but they go upon a Supposition that the Heart is a mere mechanical Instrument always exerting an equal Force, throwing out a certain Quantity of Blood perpendicularly against a constant Presistance; but this is mere Vanity; fortho we may consider it acting as a Lever, yet its lower being so variable, Calculations are of no Use; to understand the ahimal Oconomy to necessary to know Machanicks, but then we must confine them to their proper Bounds: The Use of the Heart is to sustain & keep up the Exculation of the Blood; the Unciente had no Dosa of this circulatory Mo tion, but they carefully attended to another call & it's lonich Motion; this the Doctrine of the liqualation seems to have entirely put out of ate; but those that were unacquainted with this were ricely observant of the critical Determinations of the Blood to particular parts, and describs their Symptoms exactly as in Hamourhages of the Nove fatamenia be Diarchaux likewise have their forgoing Symptoms, as a Shivering, Une afine in 9 Somach, Palins lin the Steps and adjacent parts; for the Blood.

being determined to those parts from the Surface a Shivering comes on, the Mesenterick (aliae), and Sline arteries being distended in tolood, an Uneasine for in the Fromach and Pains about those Thegions must necessarily happen, which one or how Stools will some times carry catively of But then being duzled with this Discover my of the great Farvey no longer paid any attention to these Steps of Nature no one is certainly has done a greater Service to Physich than this Gentleman; but those have made awrong Use ofwhat he has laught them, who have no much attended to it as to disregard This other Motion of the Blood; If we consider the Flaceione for of the Sibres of the Heart and the Situation of the Unicles and tentricles, together with the long fourse which the Blood must take to perform the luculation, wo far from wondering that it whould be discovered no vooner, we may much more wonder it over was discovered at all : But we prove this Exculation of the Blood a priori, for if the Blood Noppod in any part, it would concrete and become grumous, it then must stagnate and putrefy; thus it is by the Wation of the Blood kept up in all parts, that those parts which are in their own Nature pute scible are kept from Subrefaction; again as the Fluids are constantly diffipating and flying off; it was necessary the Chyle should be mix'd with the Blood to be conveyed to such parts as there fore continually stand in need of Nourishment: another Sie avon w that as Faculencies are perfectually forming in the Blood, it was requeste to fee it of them by carrying them to be evacuated at pro-

per Imunctories; thus we find it receptary for the animal June tions, necessary for the levelions, and now we come to prove it a posteriorio: This we do by Hounds in the larger to fals; if we hie an Arbery ... h. h. up towards the Heart which is wounded, the bleeding will be Stopp's; but if it were fied below the Hound towards the Extremities only, the animal would bleed to Death; but the contrary happens in Veind which proved that the Blood moves both to and from the Heart in different tefsels; the same is proved too by Legatures for an artery being fied providing there are no lateral befrels the Part will swell towards the Heart; but the Beverse happens in tying atein where the tarts well toward the Extremities; another thing which proves it, is, the talves of the Heart; which couls be of no Use in any other Supposition; we will now see how this (suculation is perform'd: Accordingly apon Camination we observe vix different vuccef wive Motions; the right auxile contracting and cloving both Tona ago forces the Blood into therright Ventricle, which contracking throws is Blood into the Fulmon ary Ortery; that puwhen the Blood in all Directions but it semilunar talves hande ering any from returning into the tentricles, it is propelled along deving just so much out of the pulmon ary toins into the laftlurice; the left dwice conhacting forces the Blood into the left Ventricle, and when that contracts the Blood is thrown into the arta; at the Instant of which the right auricle receives just so much

much Blood from the Yona Cowa, the finer park having been driven unto the Lymphatich System; so this being the lave deactly when the right duricle in contracted the right tenticle is delated, when that w contracted the pulmonary artery in Lilated, the Kulmonary artery then contracting the left auricle is delated, when the left auricle contrack the left tentricle is delated, which contracting in its turn throws out its Blood and delates the anta upon the Contraction of which the Blood is driven along in all the topols of the Body exreeft there of the Lungs: his very abourd to suppose the fireuto hion is performed in any other Manner than here described, for whould the left tentricle be delated when the right Auricle is in Contraction, the and right duriel must be in Contraction at the same sime) which must need arily put a Stop to the Circulation and occasion a Sulsation in the leins; but in the Supposition which I have of for I that will be avoided and ther Heart will constantly be of the same Bigness, but were the latter the lave, there would be but two Cavities in a States of Contraction to four in Dilatation; But way and convistent as this Doctrine is, teople give slowly into the Openion because it does not agree with that of Harvey, the he himself does not speak positively or charly about it; but at last says upon the most mature Deliberation he thinks both the line tricles contract and delate at the same time; but I must foron nounce it really impossible.

Some have end covered to clear up the Soint by opening the Tho nas of animals alive and viewing the Heart in action, but benied the

the alteration of the action of Nature which may very well be ex spected and indeed can't but happen from the great lain which the Coature is put to, the Motions besides this are signice that his impossible to distinguish them expecially in parts so closely put together and so swift in their action; but to put it out of all Dis pute D' Nichols look a large deep chested Greyhound, and laying his Ribs bare, stopping the Dogs ofespination, to prevent any Our from getting this the Hound into the Thorax had theethin hed about his wind and then thrust his Hand in laying immediate hold, the Dog was suffered to breath and to his Surprize found both tentricles swells at the same time; but on considering the trather This may probably proceed says he from one of the that riches swell sing by its aletion of Contraction whilst the other wells upon being delated with Blood; he then had Recourse to a second Experiment, for which he chove the warme hind of Subject and proceeded as before, when thrusting in his Hand he taid hat's both of the Steart, and (azotid attry with the other; upon which he found that that was Fell's whilst both the tentricles swell, which could not happen but from the Contraction of the left tontricle; this has so for satisfied if D' that he thinks himselfable and is always reary to answer ony Objection that can be brought against what is here advanced : Befides the conveniences which I have mention's, that accrue from this Order, then Heart by the alternate Contraction of the Ventricles will be able to receive a greater Edantity of Blood at once for the septum be tween the Ventucles is capable of yelding so that either of them ber

comes enlarged into which soever the Blood is received. The kintrin relevand thirds are capable of containing more, Blood than Unator smith have commonly thought, Drahe supposes the right Aurieles with contain an Ounce of Blood, but it is more likely to beable to had four, or five Ounces, and it weems as if more was required to overcome the Stewnstance and cause a Delatation in all the Unter

Lecture 19th

Of the Structure of the Lungs & Hespication— The Lungs are two Bladders situated in the Thorax of a Vorm & Magnitude always corresponding to that, they are divided into the right and left Labes, thereight is again Lunded into three of these lobes and the left into two; these are again subdivided into Lobules, which are made up of tesicles; the whole consints of Ave topsels, Blood left well and Lymphatichs:

The Hachan is a Continuation of the Large which I shall affect to south to you, this entering the Lungs divides and distributes it welf throughout their Substance; these Devisions are call & Bronochian, at their Beginning are large Glands out to Bronchial, with are sometimes converted into a Stony Substance; as in the Subject before we are makes one of the Policies of Consumption; first of all mere tradeer is togo here; but its finer parts difficultioning it becomes concreted: Und hire I have an Observation to make to you; that all the Lymphatick Glands have the same Uppearance, as the systhe Glands of the thesentery, Davillat get there is the Difference, the

there stony Concertions are never found in any except the Bronchials and mesenterich Glands, in both which places they are very fraquent, the of great Use in Physich to know from Observation what partiricular Defore, particular bark are subject to. The Branches of if Bronchia leing every where distributed to minate in tericles, by which you alond to understand them to be like Bladders or Bottle with a Neck, but they are purely cylindrical as you wile see by pour ring Mercury into the Bronchia; the Bronchial Artery rims all along with these Branches very ing to which the Plane of Branches very ing to nourish the Pings, to which the Pulmonary Artery down not all all contribute, the Bronchial time return the Blood to the Agygos; that conveyed by the Pulmonary Artery hood to the Agygos; that conveyed by the Pulmonary Artery not being fit for Nodrichment till ithas gone through

The Tracked is composed of soveral fartilagenous things which are connected together bekind by transverse the less lying under the internal them brane, when they contract they face the direction of the Bronchia are veneral seems annular things lying above one another, two of which so answer one to another that the one is foult into the other by the Action of little muscular Tibres which are fixed at the Eage of one, and run into

the Invide and Outside of the Bye of the offer:

The loads are an external membranous one from the Pleura the vecond is a liquimentous cartiloginous, one, the next is was ento glandulous and the internal smooth and membranous: Defides the Printial Glands are others tracked situated on the outside of it under the membranous (gat, but the Exerctory) Duck emply themselves on the Inside, verying to heap the Pars smooth and defend it from the Irritation of the external Cliv; it is necessary you should be clear in this because it explains a Difease; it happens sometimes either through proternatural heat, or too thick a Huid secretes that the matter asheres to the River of the Bronchia; the thinner parts of it difripating the rest becomes thicker which it continues to do till too much obstructing the Capage of the Con a lough is raised which shaking and squeezing the Glands makes them freels out a then Fluid in some plenty, which getting between this tracter is had lodge so long and the Vides of the Bronchia de sparates it from them and is then brought up; now this caving the Invides of the Bronchia in several Ramifications is cought up in the Form of them, and has given Decasion to many to call them worms, other have magin's them to be preces of the foulmonary teins: a Gentleman in the fountry vent up his Case to De Michols with an Occount that he had from time to time spit Horms, astast he came to Town, the D'Examining the Soutum found this very thing in it looking like several Branches of the Branchia three or four Inches in dength, which wnothing more than what have

Malpighie the greatest and on it of the last are extended the Sunge of the last and the Lungu of the latter he ob-Lungu of cold animals as Six her and Lizards fin the latter he obsterve within the fasceula several minute felle comports of the revicular Substance, pulmonary aren and him, which affect him are call & hote that fighie, this is so contrived that the Circum gets in may surround the Beams of the State; D'Inchale procured a Guanno which we the largest hind of Ligard, where this State is very compressions:

Ele Colmonary Colory carries the Blood to the kings but inco-

The Bulmonary artery carries the Bolood to the Lungs but inos -- culated no where except in the State Malpighie, for if so wer hould be continually in Danger of its bursting as ther Lungs are subject to such great and unequal Distentions, and whoever looks at if fine Letremities of this artery will wonder they continue to long without rupturing, but what preserves us to that the Parieted of the Thorax heef them from being extended to their utmost, thille Long coming at the Bets mallighio makes a part of it as do the Hins which inosculating together, the tolord is taken up and return's by four or five Whancher to the left duricky so in the terin cula whenever you have a branch of the Fraches you have one of an Urtisis and another of the Year, there fell & with live compress the tolodo topsels on one live which are met on the other by the fori eles of the Shorax, and where the Trachew is destended it gains up on the Blood tofels and profe their Sides much closer together: Tished that have no Respiration have Gelle which are fixed to four large Beams; they are divided into a great many Seeth each of which has an artery running on one Side to it's Extremity; on the other Side it seeds of little toints like the fine Seeth Stalomb, Those Teeth which compose the gills are made to slip backword forward erofs one another by Means of little Muscles, that by this motion these little pectinated foints of one Sooth may be applied to

to the main artery of another, where by the Particles of Blood are bro shen, attenuated and duly mix'd; which is promoted loo by the tater? Concerning the Use of the Lungs there have been different Openions in different ages; the Un conts finding that Unimals died without avyor thro want of fresh and obverving at the same time the Emplines of the Ottories, thought Life was a kind of Stame, as they perceive Hame was extinguish's for Want of they wo they may and the Lunger were contrived for the Conveyance of die to this Hane, and that the ateries which they found emply were of we to expel the Suliginous tapours. The more modern expresso themselves more intelligibly by vaying the air cools the Blood, and his con stain if the Unimal be not permitted to receive cool die he power too hot to subsist. Spoonham's Wethod in the Plaque was to bleed largely this he did in Order to cool, but finding a great deal of Plana he change his method for that of Sweating, and this he procured chiefly by putting the Sheet over the Patients Head whereby he breathed an Covery little cooler than that which he expired : tout this is better Mushaled by an Experiment of Boerhoaves, for taking adog he fut him into a Sugar Baker's Drying Boom, he door belame anhelous foam'd at his mouth and died peripreumo mich fated Spulsed; this was purely from the Heet of theriwing heat and the dies not being cooler than his Blood so & he died mortified: alle Chemish, observing arterial and venal Block to bedif. frent, the one being more flored than the other), and that that which

which is let out of the teens by standing will have it Surface more flored than the rest, attributed this Difference to the Nitre of theller and they have a great deabloway for it. Experience convinces in if Those who breath and can bear a heavy cool die have their langue fication most whong, on the contrary those who live a dule moist warm Clir have the weakest; Exercise likewise renders the Blood more flored: Pitcarn who was the first that applied mechaniches to thywich said the Cir attenuated the Blood; for just about his time Dotoche made some Experimento before the Royal Society, who having forocure a Dog, open i his Neets cat of the aspera Arteria and stopped it up with a lordy, he observed then the pulmonary artery to be empty and the livesfull, upon blowing into the Lings the lines lation was again renewd. Filearn therefore a fireted the Use of the Sunge was to render the Blood sufficiently fine to perform Secretion in the several parts of the Body, and under took to calculate the Might which the clin has to overcome in entering into the Lunged Now each of these Opinions are supported by all these things being actually effected which they coparately have magin's, for the Our cools, exally, and attenuates the Blood, for let us consider it action; no voner does the Thorax begin to be foulto up, than the cool die begins to enter the Lungs, running down into ally airtefiels, serrounds those which make the beto malighin; the whole Substance of the Lungs being now extended the cold der w applied almost to every Baticle of Blood moder along the ence ving

Heat; Expiration now begins by the Parietes of the Thorax and Dias sphragm comprefing the external Surface of the Lungs, where they on Live and the alworthe other prefing guag versum must lonminute attenuate, and mix the Blood, this the Cler would do as a Thiro, but being considered as an elastic Huis it must be that to do it more effectually; In some and of an male there is no heaps ration, yet a Provision is made for the altenuation and histure of the Blood; the Gills of Tiches have that foretinated Structure that there little See the rubbing backward and forward whom the main artery the Blood in circulating through theve Orterier may be all attenuated mixed and rendered fit for a new fixeulation: Trees have Leaves which are Instruments of the samolles as Lungs in attenuating their Juces, for being put into Motion and waved about by the thind, their small cylindrical Tubes will have their Diameters some times deminished sometimes enlarged which alternately profing upon the contents can't fail to break their Chesions and give them a greater Pluidity; but to return to the Lungs, some have vaid the Branchia in Experation are pulled one into another, but that is pale for the (artiloges are roll's so as to make the whole put on a Serpens thine appearance:

What I have word with fugare to the spiration being condidered we shall find that though loughing be looks upon to be a troublessor Symptom it is yet a Motion deserminates proper Finan; rota mechanical detion as is commonly thought, but what is really set

up by the Inconvera as being most convenient to do the thing require red, to vay it is performed by a Communion of Merres is merely ide and irrational; for if we can allow Nature to understand and to be acquainted with what is necessary to be done in the animal Occonomy, what can be imagin'd more suitable to foroduce the do wired Seet than coughing; for supporing a thick visced tratter or as some please to call it adentor acheres to the Bes of the Brons chia disturbing the action of Prespiration, what convomer relieve them or better than the clire being drawn into the Lunge in a greater Quantity and force out with a greater televity; the same hold good if any wilating farticles get into the Bronchia which must be more readily expetts by this means than any other, nay so great is the Determination of the Blood vometimes that it is moved fly out of the Care and Nove; and we see too that the Bonefit of conghing is not confine to the Lange; for if any part of the Shad be obstructed to Thereother this must be very instrumental in comoving them; It good Effects do likewise estend to the inferior parts, for an encrease Quantity of Clir being expire it forcibly brefses the Diaphragmup con the toominal tiscera which by being shahen and compressed their Juces will be attenuated and Ob Shuctions removed, in whort its effects are universally communicated to all the parts one vausezing and comprehing another even to the Junface of the Body, where sweating is frequently occasions by it; these the considered what can bemonstrate more plainly the beneficial

Design of Nature; It may happen alough may be accompanied the other Symptoms which by the Continuance of that may be dangerous, herethe lough is to be considered as complicated and in moderating it you do Pervice; but you must always take are to follow Nature and observe what is likely to be attended with the worst Consequences, twould be highly prejudicial to give Opium to blunt lens ation & take of the Stimulus when thick and vived Matter in the lause of that lough, which ought not to be stoped without temoving it Court and the boleding be of bruice in some Coughe at where y Blood is too viseed and by that theans oceasions them; yet where a Quantity of blood is need vary to force any thing out of the Bron wheat ought by no Means to be made use of I whall conclude this Lacture with an Obvervation or two, Desham in his thy wo Theology mentions a Gardiner who lived 16 Days under water Il Woman was hange at Oxford the usual time and when taken down was found alive; algentleman at Oxford who had studied Pry wich had a trind to make Experiments on a Dog, he drew a large duam tily of red Blood from him and then hange, he left him an hour or two when coming to take hom down he found him alive, he hand him ag leaving him so all Night, and the Dog was alive in the knowing now all these laser depended upon one and the same fause, and that is the Bloods being so then as to pap through the Lungs, and perform the Exculation without the Help of Prespiration; it became so inthe Dog by the Gentleman's taking away so much red to lood

## Lecture 20, 21, 22

Malpighius who was a curious Anatomist, thought when he had found the Ville on the Tonque, that he had discovered the im mediate Organ of Taste, but that is no more visible than the other immediate Organisoflenwation, the Merves are then loo fine to be seen; these very tille by Injection to be for the most part made up of blood to pals, and therefore are not to be looked upon as Rerves; that Nerves may be there no one will deny to the get number of Blood Nefsels is owing the Redness of the Tonque; it is an Instrument of great Mes to judge of Difeases, if it is covered with a white Court it is a light of internal heat, beginning at the Root where ther Heat is greatest it goes of last at the Sip, when this is found there is either a great Tension of the tills or great Großeness of the Fluids; if it be of a dark or brown Colour such are the Fluids; Baglior advises the Tongue should always be examind: a Paraly fir here ends in a Lofe of memory and Upoplexy:

The Parolis Gland is conglomerate and pours its Salwa into the Mouth just behind the verond Dens Molaris if its Duet be Wounded a Perforation must be made into the Mouth; besides q larger Salwal Glands, there are abundance of small ones which cover the Lips, Osochagus and other parts about the Mouth; our the 5th tortebra in Dogs is one; which is found sometimes full of

The Salva is either on excrements tions or weeful Stuid, by and

ly for it appears to be made up of Water Oil and Salt; if set by in a lub it grows somer or later putescent according to the Constitus tion, it is saponaceous as appears by its Frothiness, I haveknown it in venereal Patients to be really alcaline, oven so as to hirn by rup of tiolets green; in some lafes there is a great critical Flux of it as in the small Pax; in Scorbutiches there is a plentiful Discharge of it; we have had no History of those Difeases where it is sup ? sprefed, which veems much to bewanted; for it is very necessary to know what Difeases depend on such or such Secretions being supprefet; this Fluid is of great Use in Digestion by newhalig zing the acid aliment, and by its saponaccous Quality attenuated blenor and incorporates the different Substances together; Boers have attributed a great deal to its listibily imagining that when taken down the this being the more closely confind in it suffered the greater Rarefaction before it was det abliberty and so the more easily broke and reparated the Parts of the aliment, butther he Manner of its Operation has been sufficiently explained: The Musculus Quadratus on the lower part of the Face and the Occipilo frontalis are the only Instances of a Membrana Carnova:

The Larynx consists of the I superior lart lages of the Mindepipe at the End of which begins the I zachea which in the dungs take the Plame of Bronchla; these lastilages with Oto agesome times become bong as do the Formum adami; Santorini has been the most accurate in describing the Muscles belonging to this part as it was his Bufines in terrice to report the Mature of Proples Death; the Crico any tencious posterior and the ary opyglot Fideus being convuls Suffication follows; and the Breath is frequently stopped by it, which some have imagined to becowing to a falsy, but that cannot be the lase when theification retirens with the Breath; on these Muscles depend the Gravenes or Queteenefo of Sound; On the external dide of the Laryna are Glands in Sometimes swell and stop the Breathing;

Over the second Cartilage call'd Cicoreses are two Cavities wh are open when the fartilages are pulled down and shut when they are elevated, and as these fartilages move upon one another, and variously at our Phaseure when we would make high Hates we constringe the Glotties, and dilate it for low ones, this is to be die singuish's from articulation; when the dry lancied Cartilages one

ofifice teople squeak:

Townhathan been on itted here; we the Compend; or Minulais anatomy:

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The Shin of the Forehead at the Orbit of the Ego being raised, & Hairs growing upon it makes the Eye brow which being set up by the Cornigator serves to defend the Ege from too shong a Light; it at all firmes directs the Sweat down the Check and heeps The Ege lies are made up of the costernal Skin under which less

lies the Tarfus a cartilaginous Substance of a vemi-lunar Sorm, connected by Ligamente from the hollow of the Orbit, the inner to evering is the Tunica Conjunctiva which making afhannel up son the Ege of the Eye lid verves to direct the superfluous Fears in to the Puncte Lacrymales which from then ce are conveyed into the Saccules, thro the naval Duct into the Nove; round the Expelioners the lirculus arteriofus from which go off topich making the Surcus li Pampiniformes towards the Ege of the Eye lids, here likewise are small Glands which separate attrucus to beamear the logs from these there is sometimes a Surcharge so as to make ala tanh, o if continued the Shirds often grow so acrimonious asto take of the Hairs: Birds have a particular Continance by which they have the Dovantage of all other animals in defending their Eyes, which is

Brown have a particular (onkervance) by which they have med avantage of all other (themals in defending their Eges, which is the Membrana nichtams being transparded enough to admit out freient light to see their lidy, and yet defends their Eges by being drawn over them from the Dust; Wind and Jun; this is done by two curious Muscles, the one call I ferforatus with aled near the ophich Menne; the other is Pranically from which rums a Terrion after it has taken a Turn round the Referatus tin reflectio back to be inverted in the borny ledge. The Asvantage Teno. Rooming of this Stuclure is very great, vince for every new the Referatus draws, the Membras training.

speak largely to be the better understood, so for every Inch the Perforatus

ena nichtans will hereby be dr awn hoogwe

draws, the Pyramidalis will draw half an Inch; another avan = to go is that smaller Muscles act quicker than larger, so that this Membrane is drawn over by an inconceivable Quickness: The lye is connected to the Orbit by the Junica Conjunctiona, but it is rather a Ligament than a foat, this it had been confound ded with the allouginea; the former arises from the Edge of the Schoolica; but the latter takes its hise from the Sondons of the hurcles; and between the two is a reticular the between; The globe itself is made up of two unequal Segments of offerent Spheres whereby the law of tision is along ates; the Case where of it is composed are first, the Schoolica which is an inclassic Sendinous Substance; in all Boos the anterior part of the Scherolicasis bony, comports of Lamina moving one over another by the Opistance of fine musular Fibres, by which means they make the Corner more convex; the Gamea vituated on the fore part of the lye is a Continuation of the Selevotica, whose Silver then love their Hature and become claritie; the Me of the lornear is to give the first the fraction to the Staye of Light . In Ouls the Cornea is very convex, the bony Lamina of the selenotica are very large and cavily slip over one another, the hinder part is liquementous. Wither therelevotica is the Corosides, between both are fine nervous Flamente which prince the Cornerdes with the Blood Topich, the Corocidor is covered on both Sides with the His opum propollowum; the Coat is distinguished into the exter

- rial Winternal Lamina, the first is loaded with Blood lefwels, and so is the latter also, only with this Difference, that the Blood tefels of this sends off a fine plushy (Expearance) Ruysch was the first who described this Greumstance theres speak of the Corocides of Brutes, in the human Subject the Bl Hipolo oun in a Stollated Manner of throw off some Plush but not so much as in the others, from these Papillose lake mities go of the topsels that form the vitreous Aumour! No Author have taken Notice of this Nigrum Popullovum which covers both fires of the Corderdes, Some have thought it to be a Mucus, but in the Eye of a Seadion owleabitts an apparent (uticle; this is a thing of some Consequence) Others. fore she be remembers; the internal Saminar of the Chorocide new of the Seal in Seall the vasculo papillova is as white as milh, which is very extraordinary, yet red to feel o run theo'it to form the vitreous Humow, but tound the Ege of the for nea it is like that of other animals; the Chorocides coming forward hums round forming an angle pmaker therris or as vome callit the Uvea; the Tris has its name from the great tariety of 6 slours it is observe to berof, it has a lower of fontraction of pasion by which the Foramen or Pupiliv enlarged or dimiinished; there have been a Dispute whether this action was performed by muscular Fibres; the only Objection that can be brought against the driv being muscular is because it has no hed Silver, but it is ordent that thousand of Investo forform

all their muscular Motions without having one red Tibre; the Benefit of this action is, that the haye of Light may be admit Ted in a suitable Proportion to make distinct Vacion, this is very remarkable in a lat; and the Mountage is that we can the better see Objects that are nigh and have a clearer View of those that are distant; this too distinguishes the Guilla Serena, wherein no alteration of the Pupil whatvoever be the Situation of the Eye with he gard to Objects or Light; there is a very extraordinary Defeave calle Nycholaphia where the Person can sevenly in a darkish Place, o proceed from the middle of the Cystalline being grown opake, so that when he comes into the Light he contracts had Pupil o sofar which out the Rays of Light, that those which en ter fall directly upon this opake part, so that none can reach the Retina; but coming where there is but little Light his Repub is delated and the Kaye paping round the spake part get to the Retino and give him the Senvation of inion: The Blood to feels from the exocider running to the I'm make the arteria circulario which vends of stright Duels like the spakes of attheel there are the Ducties agreeing going in a Plane parallelo the handverse (law of the Eye; beview these the inner Samina) vend of the same Covering of the Rocefour Cleares and the interne Samma of the Fin cours that? There Processes Cliares make an deute Ungle with the Repel which in Ocen Sheep and Deer is delong; to the aqueous Fremour is supplied from the Ductur Aquasi, the Cystalline Body is supplied from the Procefous Cliena, for they are greatly loaded with Blood Tofsels, from each Side of w go of the refeels revembling Teathers on a Quil; the Vitrous Body havits Supply from waveulo papillose Samina of the orocides: The Refinance a white Membrane extremely forder which lies parallel within the loronides, as this does within the Selerotrea; this bis Gat pals the tefeels which run from the forocides to the vitreous foody, author speak of this Membrane as if they found it to be an Expansion of the optic Merve, but it is mere conjecture, for of the Optic Perve be hard ever so carefully as soon as you come at ito Entrance into the lye, the forgeives so closely attacher it welf to it that his impossible to follow it any further, so that no one can vay he ever vaw the Expansion of the Optic Herve; the many pretend to it; I mention this for the Sake of Truth only, for notwithstanding the Uncertainty of it, I believe it to be so:

The tifield which form the titre out Body run into it whole substance quite the oit forming fells so that the whole is a forming of which is the whole is a forming of which runs over the Try tallene and embraces it right round, in this Body is a Frozen which were a a Bod to the Try tallene; round the Try talline Body is a radiated appearance of Duches nigri, which is nothing more than a soptimulation of the a Viguin population most now from 9 ( creids; the ham parent Arright Bodies which arise from 9 vitrous Sumour and are inverted into the Crystalline weether digamenta Charia; some think them to be muscular and that

when they act they defore the from inences of the titreour Body, cby that Means force the frystalline forwards; the Tovea where the rystalline lodges has a great many Blood tofsels; it hap: pens sometimes that there inflame or are obstructed by the Viscidity of the Thirds p make that Lamina opake, where the Rayd may paps thro the frystalline but can't enter the titre ous, this makes one of the Species of Glaucoma, it has been mistahen for a lataract ofersons have been couche for it without any Manner of helief, this is not mere Theory but is confirme by an Observation of Montgagnis:

The Use of the Aqueoles Humour is to give the Ege a greater Convexity; it is it to be contained in two Chambers Camera anter

trior Vpovlerion;

The Constalline is as it were made up of legments of ifferent Spheres join's together with its most convex part towards " Teterous; the Parisian anatomists say the host conver apt of the Crystalline of a Seal is towards the Genea, The re warming ened it very carefully but could not find it so; the I know of no particular Use in this Setuation; it is covered with a proper (at from which go of tefsels to the Body of the Cystallene) the Scotch anatomists imagine that there is a Lymphatich Sluid betwist the area o (rystalline itself, but that is a thistake o) arefes entirely from the arane as being clastick, whereby as soon as it is cut into, it flies as under plears the topels of the Cyntaline, from which in pour d that Lymphatich Fluid, which they speak of Some have support the Crystalline Body to be

made from abour ption; but it is wholly compored of thefeels with their proper Fluid, which run from the Processus Ciliares offerina to 4 aranea o from the new throughout the whole Substance; thinslow injected them in a young Subject; the whole Body appears to be made up of Laminations like the look of an Onion which are form and of those tifsels; The aqueous, the Cyptalline phitreous Hum being constantly supplied by tefels whenever there happens to be a Surcharge, their Hepels are distended whereby other lateral Symphatiches are opened poarry of the Redund any; it was needwary there should be this Contivance vine all animal Huis butsefy by Stagnation: In Order to apply the Eye to different Objects, it was necessary the former should have some Power of changing it Connexity to aller the axis of Vision, which is by its Fibres being classich, the four right Muscles, external internal, superior pinferior aires from the clear tice are inscrited at the bottom of the Orbit so that when they act, by their Contraction they pull the Schoolica backing and push the Humower forward, besides there arestwo other trusseles which have the same one of which running round a heley at the internal borner, is inverted with the other at the Botton likewive, these are called oblique internal and external, which compress the Globe and lengthen the Uxis of Vivion-The Eye has Blood Topele from the internal (grotios, whose Kins discharge themselves into the Singles of the Dura mater Genternal Sugulars: Mi Herves subservent to Motion come

from the 3. 4th 5th Wb thairs, those for hision come from the 2º pair from the Medulla Oblongata; and enter in such a Man as to be within the dais of Vision towards the Hose, because at its intrance there is notision, we are now to enquire how it becomes subservient to fision: The Rays of Light falling upon an Object are reflected back ag" so as to Siverge or spores, some of which falling upon the forma centering the Bull pape on to the Retina in the same Order they are in the Object whereby it becomes visible, this is performed by Refraction, which depends on the Distance of the Object the Coveredly of the refracting body with Toese, two of which being given you consequently have the third; for this herson the Ego multhane different Convexition to vow Objects of rifferent Mag encludes and different Distances; the Haye of Light bafoing from a thurner to a thicker Medium are always bent towards the Porpendicular: When the Surface of the second is other comwex or concave the trays are refracted after certain Same, with Regard so the Convexity of the Ego when Object are small & hear we endeavour to enchose it as much as popular in order to whoten the lais of twing this is performed by the right Muse roles ois hall the Microscopic Ego; but when Objects are ata Destance we langthen the axis by the action of the Oblique Muscles which make the lye flat when the Clasticity of the Grea makes it fall o yets to each Side; Distinct Vesion is where the Rays united exactly upon the Retina; if they meet beforethey arrive to it, or go beyond it Vision is confust; Sall

along suppose the Metina the immediate Organ of Vision, but it has been disputed upon the decount of an Experiment which is made by looking at three Objects in a horizontal Line where y middle one becomes invisible whilst the others are seen; this being considered of, it was found that the hays from the middle Object fell directly upon the Optic Nerve at its Entrance unto y Eye, the other fell on ite Expansion; from this they concluded that the Ophe Nerve could not be the immediate Organ of Sight, for vay they if it were, the Rays which fall there would be the most distinct, o from thene affected that the Coorder was the Mem? Frame which communicates the Sensation of tision to the Senso recum, in which they were the more fonfirmed because where Vision was deficient the torocides was deficient; this now is taken for granted to be the lave because whenever there is a Merve they think there must be Sensation, but I have already shown fow that Merves have no Sensation in large Bodies, mean at their sides; but Sens ation depends en frely woon a prosper Desposition of the nervous Filaments; however, wetting this aside tis impossible the Corocioes Noule be the immedi sate Organ of tision in some Unimals, for it is covered on both Side by the Higrum papellooum in the Eyes of Brutes, conse: quently whatever have go beyond their Retina must be absor-The before they can reach the Coroseder, for it is well known black bissies will not admit the Light to pale the them; but these Univalences without the hope of Light reaching the Concine

rocides therefore the tietinas must be their Instrument of his conso what is the Instrument of tision in one Unimalis un =

Bestee the Eyes being the Organ of hision you have here of finest trechamism in the whole animals, here are the finest Let of the feels, finest Coals a the finest Aumours, vince they admit the Baye of Tight to pool thro them; here too is deen estant (reulation & Secretion, here you have the greatest) Roof of the Rever having a lower to alter the Secretions, for no somer does frief king a Brown than he finds a Determin nation of the Fluids towards the Eyes, this is wisent from the great Refure perceive about them which goes off again upon shedding Frank, this Effect of the Papions is sufficient to show that facetion is not parformed by an unatterable the -·chanium:

> Lecture 25 Of the Organ of Hearing the

The Ear is an Instrument calculated to receive, to moderate, On be vensible of the hays of Sound, the external part is a Complication of Follich arches, the whole of which is divided into two Parts Pinna & Lobis; the Cartilages have the same ton volutions as appear outwardly, whose furnatures are altered occasionally by verb houseles, the some have denied their cais sence; others aftert they were obliterates by bunding the Head it young but there are whole Nations where the Head is never

bound get two observed their cars have the same thate an ours of their Hearing is performed in the same tranner, Some allow of two Slevator Thehackor Aures, and would persuade the Storts the red are thembranes, but they arevery fair muscular Tibres is run in a contary Direction to the other; they are destind for the Motion of the fartilages only; for their names vid Compendum by these Muscles the Arches are ad a foted to break of the Sounds, throwing some obliquely and others entirely out? The second part of this Instrument is the Tympan um is is all that irregular lavity contains between the membrana Tym spani Dabyrink The Situation of the membrane with hay to the Body is oblique its upper pt inclining outwards, it is found of the Thin, which and Periortoum of the Crity, naturally exconvex by which it is connected to the Manubium malles, c) the Manubuum is connected to the Musculus Inductor which I shall de scribe presently; so that whenever the membrane " haben by the vebrating Motion of the external Cir it shakes the internal Bones; but whenever the internal Bones are moved by the internal Muscles, that becomes obedient to them; for you what distinguish between the Mother ribrand Strotus Chan; whatever motions are communicated by the dir to the Tymbar num this membrane must be mondil The Glandula Cerumines are vituated between the factilinger

The Alandela Commined are istrated between the factilities the internal Membrane of the Meature authorius which increte

the Wax of the Low, this is support by its Bitterness to heep ansecto out of the Ear; I imagine likewise that it verves to keep the trum brana Tympani moist, for whenever I carefully pick the to ax out of my Ears, I am sure to be dead. The Meatur internes is that which runs from the Polate to the Type panum, which was abvolutely necessary that the dir contained in the lavily might have ofee Communication with the external die; for if the die here had been confined it would sometimes bedenser sometimes more racefied popula velom if ever have been in Equilibrium to the external dir which would have made a great Confusion of Sound: his whon the account of their topsage that leople ofen their troubles cometimes to hear the more for feely; His cars Helaginow fow and the Palate bony toward the Tymponum, from Entacking being the Discoverer of it, it is call the Lusta: rechian Jube, his this that leople are able to drive I make this their Cars when the Membrana Sympani is not closely surrounded, this topage obstructed by Meers make tople deaf: In the Tympanum are other Paperges, one is in the Foresha Ovalle on which stands the Bone callo Stapes, this is just below the Membrana Tympani, under that is the Fene shalfor -tunda which is covered by a thembrane, there is becorse an leading to the Cells of the mastoridens; bevides which are Townin na for the tendons of the internal truscles of or Herver; the Goods Tympani how been accounted atterve, but have a diffrent Sea of it; the I do not dery but it may receive come dilas ments from the Bortio dura of the auditory Nerve or from the

fifth Pair of Nerves; but in it are found not only lifely from the Bris voteum of the Malleus and Ineus, but also ligamen tow Fibred, which are spread of ind to the mallers, oby the apistance of the Procesous Ravianus heep it in Equilibrio, Shuges moverate the action of the Muchan Inductor, that it acts only with its own Force whom the Ma-\*nubrium maller, and there in the 6" Table I have represented this ford as a thoroted Rope; its live is to moves y Bones orelas y Tympanum The Bones with their Ligaments are set down in an exact Order in the Compordium, but achair dea of them is only to be had from son ring them : I shall just speak of the Muscles and their action; the first is the above to and Incide which arife from the Ou Bhow um on inverted into the Processus Ravianus all along it & the Malles, it draws the Mallens from the Incus: aductor ad Incudem arises from the Or Temporis prunning obliquely downwards gets behind the Mache andiforing of inworld into the Mankbisam Made, verying to rate the Tympa: Industry arifer from the Or therovern forwards, but reflecting backwards itrum in a bony (hannel of ite own in indentito by a Jondon into the Manubrum Tolow the Tulerum, this backs the membrana Tympani: Hafordens Varifes from the Os Behovem backwards ozunning obliquely is inverted into the Head of the States verying to till it upwards upon it Bafu which is the Or Orbicularles Burds have no external care pout one anditory Banas: The Bone of the Labyeinth are harder than any other in the lordy convicting of three Semicircular Canalo, Kotibulum O

Thea, which I have already spoke to, the four and itory Bones are The Mallew Inew, Or Orbiculare & Stapes: The auditory Menver is divided into the Portio dura postional elie, the Portio dura gets thro a Foramen of the Ou Petros um p is spent partly upon the external cars, upon the lide of the Face Teeth, upon the Muscles of the little Bones of the Ear o woon the Dwa Maler; the burning this nerve is a herhedy with some for the Tooth net: The Portio molliv is entirely upent upon The reparate action of the Muscles of the auditory Bones is the Laburinth: very edry to comprehend, but their joint action is complex, This is what we are to consider; In weak Sounds the Lympanum in beard as much as possible, that the libration of the live may be communicated to the almost to the devitory Server, on the com trang in strong sounds it is relaced, that the Whaten may of feet the Salfrinth but weakly; In Order to explain the Shows tion of hearing wermust convince what loune is: attell struck upon in an exhausted heceiver gives no Sound or at last only such as is in Roportion to the Quantity of divremaining, for his impossible to draw it out entirely; there fore communicated to the are other striking whom some particular parts of the Ear gives we the Bea of bund; the this vibrating with a given belodity will produce a proportion able alteration on the Organ ofhearing; Sound becomes acute or grave according to the Humber of Wishan tions made in the space of a thinutes more or left: Splings of deferent Long the of the same Degree of Tonsion be struck whon equally they will give greater or acuter counds in hopor

from to thew Length, o if there are ever so many Instruments in one othe warm hoom whose there are in Unison with that shout upon they will all witrate equally o produce the same found, but this is more remarkable in those of lat Gut, than those made with

The former Motion was that Sound produced an undulatory ho tion as is observed on the Surface of Water when but in trostion, where the Undulation is largest at the Conclusion, but dir like light in propagated in right Lines whose Rays too may be made to corneive in a Tocus; this is proved by Bulongs which are so con Third as to reflect the Bays this or that way so as to produce stronger Sounds, but where the Linea Sonora fallson flaced to edies they are lost, but if they meet with rigid ones they are reflect the back again, so we to have the Ungle of the flexion equal to 4 angle of Incidence; no Fat is found on the external Ear, that the Sound whom weath might not be lost, on the contrary by the africance of the Folloch arches it is directed to the most as wantagions fort which is where the Membrana Tympani w connected to the Manubrium Maller; in this lave the Inducted I. Tab. 6th pulling up the Manubium, braces the Tympanum the aductor I bull the Had of the Malleux to the Inew, the Incusthen is profit towards the Orbiculare the Muscular Stapin Down raising it up viceways together with the Stapes which stand upon it by this means the librations are strongly continued to the Ligaments of the Stapes which lie over the Tenestra Doubles of the Mane are propagated to the Labyrinth, in this Labyrinth

we pread the Botio mollin of the Auditory Reover, but to account for the Communication of Sound to that, they have raid a Stype the fir, that this Horocins wound round the thread emicincular Courcal Canalo & Cochlear which is conical also, by which means they consider the parts of the Heroe upon each as Chords of So many different Lengths o in Symphonic Tension with all those of a murical Instrument which being wi brated up on by means of the Communication before montioned they pro-Douce ismilar Sounds in this Heroo thus dispost of from home are conveyed to the Sensorium: this is more I magination for such Goods were never found, the I don't dispute the life willily of there being such; takalva is very positive about them a sup if the Ear be carefully examined before it is dry they may be perceived, but all the Pain Show been able totake have been ineffectual to discover them; o what her takes for those nervous (hords appear to me to be the Briosteum: With Regard to strong Sounds; here the Inductor Is does not act, but the abouctor It which was before at rest, now fulling the Head of the Malieur from the Incur relaxer the Tympanion which therefore with a ting left propagates it titra tion the left can the Ligaments of the Maleus are flacing the Inew isbut weathly acted upon; the Saficeus then continues at rest, 104 Stopes itself can transmit but so much the weather thoraticons to the Labyrinth which must affect the turner proportion enably; what Shave describe is what happens supposing the

Bowon to be attentive to any Sounds he capeche, at which time these park are thus put in action; but if a strong Befort who be made from a lannon without previous Hotice pone was standing it, in all Likelihood the Tympanum would berbroke; but ifhe is warn'd of it, he so fixed the arches of the external land that the Bayer whall be thrown upon the Tympanum at the go rest Dis advantage; helikewise vo direch o dispose the Olision of the internal Muscles, that the Sounds whall be communicate Ted with the left Force to the Claditory Herve; this, Experience confirms; so in all these lofes a just Degree of Tenvion is rdisd in the Nerve; wich athoderation o modification is given to the have of Sound that they will not produce fain that is great, the he can't absolutely present hering no more than he can seeing when his lyes are open; perhaps from this account of the Pervation of hearing you will think the vis halory Motion is communicated to the Sensorium, but that is impossible because all therest of the Here is quite flaceing but such an Alberton is insued on the Nervo as is suitable to communicates this Sensation made in the Car; for you must always remember that as to the Sons ations in general we can say nothing of their laufes, but only of their Conditions Lochure.

## Secture 26th

Of the Beain, Sensation Eve The hairy Scalp abounds with Inovculations which is Reawon that such great Efucion of Blood follows Hounes of this p; it vends of Blood to feels to the Consorteum which immediately covers the Canium, from whome they are hansmitted this the Susures to the Dura Mater; as there is no internal Brioshum the Dura Mater supplies its place, detaching Tibres to the Shall Defrequently receiving others from it; this close Connec tion makes it impossible the Dura mater should have that pulsatile former which Baglivi has attributes to it, for he out - poid by that, the fairle love driven out of the Brain and reed in as the Hoart does the Wilood Lindeed the Capotis Unterior beating white against the agreent parts which Motion may be communicate -cated throughout the Brain, but that is very undle, the this is 4 only Motion that is felt at the Faramon of Infantis Steads; and im edeed the Opinion is plainly contrade the both by Mature and Ulm. storny; for the Dura Mater is not built for Motion, has not so much as any muscular Tebras, but is intirty inelastick, which being con divered with be found to be of more Consequence; for in malignant Tevers where the Stationt is attacks with violent Head ache farm of the Buch and Thigher, it is an Indication that this Membrane in the Seat of the tain of the Head, and the like Substance that of those in the other parts, for the same Diferse always affects the same kind of label ancer; and this is the Reason Those Levers are so dangerous, because the Huise circulating in these park

are more dupored to mortify than any other; the Somath in this lave is generally affected so as to bring an atomiting pot from a land or Saburra of crude Humanot as is commonly insinuated, but this tomisting is really a long the statura to relieve the Obustruction in the Dura Mater, by determining a geoter wantity of blood with an encreaded belocity towards the Head; the
there may cometimes happen a foul Somach at the same time,
(and it will not be amife to give a gentle Tomit, paying lagered
to the Sulve for the Bulie but when the Bain is very violent, and
this of lammation apparently has been sometime a farming
let bleeding precede it:

Membranes are observed to be composed of many Lamina concorning which many trifling Disputes have been raised, as to the tumber ruch a Membrane, Chow many another has; there are always more or less according to the Besterity & Industry of the Inatomiest; but where there is no particular Structure to arous any User from, the mere lost Labour and Tally to spend our time about it, I shall there fore make no farther Divisions than

where wesfind Difference of Shucture):

The Bura Mater covers the whole internal Concarity of the Cranium, and by Detachmente makes over Brocker; by one we we talk the longitudinal Procede it diordes the Brain into two Homisphered, the User which they have asoribe to it is to proceed one part of the Brain from profing upon the other when we leed sideways, but if the had been the love; there ought to have been a transverse one the wive to present the store for profing upon

the hinder when we lay on our Backs, which seems for more ne copary than the other; it have we is to suspend the lateral ho rafiles of the ferebrum, to prevent it fore fring upon the ferebellum, in which lave it verves as a Drag- (hair, and whe never this fals ciform Process is cut, the lateral Processes fall down directly; now in Brutes who have great Exercise pare subject to shake their Seads, as the Sion, for the greater Safety of the Crebellum their lateral Processor are bong; this is of the also as a Ligate to connect the Bones one to another! the kins of the Brain emply them selves into the Sinufes of the Dura Mater; in the larger Singles are transverse them. branes to preserve their lides in their proper losition agit the Impohes of the Blood, they are called (horde: The Singles are Sivided into the greater Clofer, the first ofy large ones is the Longitudinalis running all along from the Cycle Gali to the Decipat immediately lender the Lagitale Sur Store receiving the Block from the Brain and powering is into the lateral Simples, they receive Blood too from other thinks and pour both into the external Sugulari; the Translateral Sienus runs between the tood other Speame where they all meet a four their Blood into the internal Sugulars; among Large time could not with any Conveniency have been loops the lepon Simple are the long inivinalis minor We: in the Brain, these Sinufes therefore are contieved to receive The Allood, a brokerly speaking they are line Branches from the She Dura mater has the principal Branches from the

external arolids, which running up the Os Temporis before they enter the Shall they vend off ohe Branch to the under Jaw & Joeth, another Branch is reflected back & thrown between the Os Leho oum Shanocides, the rest goes to the Temple; that which en ters is short chiefly upon the Dura Mater sending of Brance shes in many places to the Brain, it receives other small ones from the vertebral a optical arteries: Herves come from the fifth & veventh pair Immediately under the Dura Mater is the Membrana Crack. mocides then as alof web, vomer deny it Existence, others confound it with the Bran Mater; by blowing under you rouse it up, I have found two Lamina of it which is outficient to proce there is such a one; it is distinct from the had nates, for that going down into the Brain cannot be zais & by blow. The Sia Mater accompanies the Brain in all its Onfrax whice by which the external Surface of the Brain is much greater than it is imagin'd to be, for by this Disposition it is like the Convolutions in the Nose, and if it be considered as to its external Oppearance to have three Square Feet of Surface we may reasonably allow it to have veven; it has the steries from the internal (arotion which are extremely earnified, carried down these Unfraxities of the Brain by the Brathater where they inosculate pare from the new distributed into all ito cortical Substance; Invereral anfraxities of one prepared is lodge whater Bus, which pro ceeding from an Inflammation there

there; kill'd the Patient; it was a focus of Prendis; the Mer of the Pix Mater is not only to cover the Brain but to distribute the Blood as equally as equally as possible, and the the frequent Inosculations in it might be sufficient for their therpose; yet these Unfacilities and on additional browns in that was for the equable Distribution:

Hyou cut into the Brain you find two different appearances, the external part is of odrhish brown red lin called the lock -cal Substance, the internal is white & goes by the Hame of the Medullary part; in the former the minuted Ramifications of the Blood tofuch wend of the fine Tomentum, you then come at The modulary part which is so extreme tender, this its prodigious new Texture that it is impersorulable; here we are got to our farthout; and are intirely lost; here is a great Instance of the wonderful Operations of Nations! the Cystalline Rody of the Eye is a curious Texture of fine to facts, hand barent; but how fine voever these are they dre yet opake, Cut down perpendicur larly on both fices the fals from Fraces Dyou come at a white Substance catto Capus Colloworm which Name is given it with out anytheaning; foing farther you enter too arities orker stricter of the Brain which are divided by a thin Membrane call Septam Lucidum vie Compene & Mindow's Unatomy:

The Corebellum appears stricted internally by the cortical of modulary Substance branching there somewhat like a Tree modulary Substance branching there somewhat like a Tree wis therefore call a Arbor lite, the last Hound in the Cerebellum is mortal; you must turn the torain topery turny, to see the parts of this well; vir at supra:

The Arteries going to the Brain are part of the internal Carolins place bat aheries which in their fourse make such Mining ! Juning that their Longth might be commensurate to all the Mo sions of the Head that by frequent The xions posseulations the Exculation might be carried on without interruption: So from what we have seen here we find all the Requisites of alfland; a large tumber of Blood tofices carefully upread promified make a fine Tomenhum, after which they entirely disappear; but in all Probability those continued are intended for a Secretion, but what hind of Secretion this is, or what the Fluid is which is secreted, or for what live it is intended, we know nothing of; the Names which are given to the veveral parts of the Brain are merely arbitrary, for we are ignor and of the Use of every one of them; The Brain according to Willis is the proper Instrument for voluntary motions & Faculties, and that of the Cerebellum for involuntary motions; but this is to be received with some Exception for when the crebellum is destroy the Somach may perform The Ofice of Digestion; but besides these regular voluntary involuntary Motions, there weem to be others irregular, directed by the anima; of think it pretty evident that muscular Motion is not forformed but restrained by the Merves, for the Blood itself quaternes a Hued is capable of producing muscular Motion, o where the Merves have lost their Power it actually dow it, when those Muscles which are capable of receiving the greatest wars chity of it, as it runs indiveriminately, are put in Motion; but be wides these hands of Motion there is the tonich one defending

upon the Tension of the parts for the Arteries of a dead Animalhave the same Besilitie Elastice as those of a living one but if you inject those Unteries they will not propel the Liquor through on, the must therefore to perform in us by something che, by a tonich Motion, by a one Tension supported by governed by the Anima

With Regard to Sensation we have already considered it can not spaced from an Andulation of a Ruid in the Herves, nor from atebratory motion of the Herver as (hords for his certain they are commensur als to all our marcular motions in Lingth; they lehewise averins ensible at their Sides, the vansible to a Blow from their Opices : Some will haveit we are only paf wive in our Consations, but his certain, the we can't always avoid being verwible upon the application of Object, get in many (afer we may; and the Organs of Sensation are vomaing Instruments which the Soul employer to quand against Danger; for she is visibly active in Sonsations, adapting the Ex and Ear to the ver respective Objects, and it is the same infeeling, unalling and lasting; for the a terson be nathy fichlish, if you go about to tickle him against his Will he can prevent those Impulses upon his Herves giving that the Dification of lensation which they otherwise would have done, which proceeds from the Intention of the Mind; the same holds true in the rest for we have a manifest lower of render

every Sensation more or les acuto; suppose a Book to lay of on before alervon, he takes in a whole Dage at one Tiero, but he can so a Doupt his lye by fixing it on one Letter that the rest or greatest part of it shall scarce bessen; In Difeases as acute Severs owe Senfes are greatly heightend where the Eye can't bear Light nor the Ear Sound, this seems to indicate an aparticular tranner the of preservative (are of the anima; where those Impulses which the Organs before could bear without ampenjung are now too great and Phreaten Danger to Life; thus does she set her continels upon the Hatch to avoid and heep of what might be hust ful to the Rody; Shave given you my Opinion already that the Nerver commianichto Sensation by having a lower of shortning themplaces; Impressione went to remain some time after they are made, & require a certain time to be communicated to the Sonsorium, for a Limb is what off by a Ball without any Pain at that hime; the Willer that had his arm fould of felt no Pain then; nor did not know her had lost it till he was told so, because the Continuum was too vadderly broken; I wish Gentlemen Seould vary something more valistactory on this Subject

For the Nerves tumber of Pairs & vid fomp:

Lect)

Lecture 27, 4 28th

On each Side below the Emulgents on the the fore part of y Oorta descendens go of the Formatich activies running down in a convoluted Manner into what they call the Diploce, from the very first Convolution go of the Dames Josem nutriens, the rest continuing to contact are distributed into the Body of the Texticles where the Veins and arteries inosculating make the loop we programidale, the arteries coming to the Cohtre are convoluted in a wonderful Manner they then send off the Sus · buli Somniforis tohich are also combolited most wonderfully, there Subuli have laterably mphatiche which depurate the Semon, that there such is proved by blowing into the Jubuli; if the Sestiles are cut transversely you will ver these Jubile Semniferi dis post in a particular Manner o Order, uniting on one Nice in the looper Higmore; all these small to feel then make one topiel which being rolld up and lying whom the Kor edy of the Testicle is call o Condidymus from whence itvendo of that Branch which makes the Vas Deferens, this mounts up again into the aboomen prunning down behind the Blad. der terminates in the Vericula Lominales; these lie in hoo Bodies one on each Side the Nech of the Blad der and are connected to one another by a hiangular Ligament: The looks of the Tostes are first the Junica Saginalis is is common to the Sparmatich to feels and Tostes, this is nothing

more than part of the reticular Substance running down from the Britoneum and surrounding these parts, under this lies one which is proporto the Tester & Epidydimus, but common to the Testis and Spermati Hefrels, you then come at another called Junica albuginea propos to the Testis only, this is perfectly inclastick, which was requisite to heap the Parts close to getter, as the Somen is a Third subject to such quich (hanges; befides There are those common to the Dartos and Jorohum from ich are form of the Rapha Exlep tum; but I shall stop now in Order to speak of the Hydrope Testie of which there we two Jords; one when the verum lodges between the Junica Kaginalis and that which is proper to the Sestin and Epidydimus, and the lavely between these two loads has no Communication with that be tween the latter and albuquea but has a Communication with the lavily of the aboomen, and therefore upon lying down or prefering upon the Sumour it will grow less; this is common with the Hydrope Oscites; but there is another Jost which has its Seat in the James places byet is not a forsequence of the Ascites; and that is when a Lymph is accumulated between the Seritoneum and its reticular Substance , vome of which falling down here occasions the Ayorope Testes, this likewise divappears upon Supernation and Brefoure; there is yet another fort quite different from these which its deat between the Junich proper to the Epidydimus and Testis, and the Sunica albuquea; this happens from a Laxity of the

Titres and Transudation of the Lymph which not being absor-Bed, there stagnates and produces this Difease; In this lase Recourse is had to happing; this is to be distinguished from the other as it will not diminish by the foure; but the the Water be evacuated the lause remaining the laving will voon be filld again; thus it was common for such as had this Complaint to go to the Surgeon's every month outwo to have this Operation borformed; Waer at amsterdam taking the matter into Convi-Scration, thought of a radical furer, his trethod was to make apretty large Incision, the Water being evacuated he injected akind of thel agyptiacum, by this means herais dan Ins flammation and so brought on an universal achevion be: twixt the hoo loaks, this entirely prevented the Return of the Diverse; but the present Practice is only to make a fretty larger Incivion, expose the part a little to the Clin, which pro-Louces Inflammation enough for a total aches ion, without being attended with the Inconveniences of the other method: The Scrotum is comported of the Caticle Lutis, Reticular Sub stance & Dartos; the Dartos is truscular corrugating the Scrotum Wheeper up the Testicles, they in Order to be ven, must be examind in a fresh Subject and good Light. The Somen being carried into the two membranous Bags at the Nech of the Bladder it is these deposited, these are call the terreala Seminales, whose Situation we such between the Bladder and Rechum, that the Levalores Oni contracting

draw up the feetum and prefer it against the hesicula Somina. les so as to free out the demen with some Impetus; they open by two Ducto into the Urothra paping theough the laput Gallis naginis they are observed to have muscular Tibres making Insciculi which by their action force the Somen through the Duchs : The Orteries of the Sestes are convoluted not only to be confind Ducks: to a narrow Compape but to admit known for a great Quantity of Symphatiche to carry off as much Lymph as is requisite to Dispose the Blood for the Secretion of the Soman; arriving then at there lester they are call up in the lenter wonding of the Subuli Som inferion all Sides; these make the Epidydimen and las Deferend which likewise abound with Symphalichs that carry of theredon dant Lymph as the Semen paper thro to the Vereula Seminales: Lewenhorth coaminang the Somen of different Unimals found in all a forodigious Number of animalcula running logether in Chusters, these her support to be the Rudiners of the future a nimal: a Question may arise, why that which is always exristent does not always perform Its Office? or why the Tester which have always saided from the Birth do not veereto their proper Fluid All Puberty! this may be accounted for from there Differences of huchure; because till a certain time there is so great a Lacity of the tefsels, that the Semen finding no heris Sancerin its to page runs along for much deluted and is carried again into the Mate of Blood, but when the Fibres grow more strong

and rigid as they generally do at 11 on 15 they don't yeld so casiby to Refune, the Somen is retarded, the Suber swell, the lateral Lymphaticks open and abstract the thinner parts, when the rest becomes too thich to get into the fixeulation again, except upon very great Distention; this is confirmed by Practice for People of law Sibres are not fit for tenery, but are rendered so by the lot bath, by (haly beater and other Corroborants; there is a Difease called Interhips which is sweating about the gental parts, this in a great Measure is owing to the Laxity of the Fibres, whereby Se Seminal Flavor with the others transude the the Porce, with also are unfit for tenery, so that a natural Elemion is absolutely necefury, for the lemen to be conveyed to the terrede Sommales; which is the proper nervous Shieture. In like manner we find when the thind is meeting or intent upon some serious forcers the Testicles are lax, but when a venerial Object appears they) immediately grow tense at least when any that are pleasing present themselves for then the Staid are detained; The Seg-Theans are related by Hippocrates to be impotent: Those who are greatly employed in abstracted Andrew have very rarely e vome never any Inclination to tenery : It is vaid of Sin sand Newson that he never once had any carnal Intercourse with a Homon, yet he was alman of ah excellent Constitution-The Penis is composed of three parts, two of them are called Corpora favernova majora, the other Corpus Cavernosum menus, there are nothing more than thereticular Substance interspered with Block topsels; the two first arise from the Sur

Sercula Sehie, which uniting run forward and make thoupper part of the Pones, the latter de few from the Neck of the Blader to god omake the lower part of the Benis including the Une thras when is comes at the End it is reflected back and makes the Gland Genis, there is no Communication between the two Majora and minus , for by blowing into one you can't inflate the other; the two upper ones are divided by a Septum, and are reparated from the Glans by another: The Penis has its arteries from the internal Place which en stering the anterior part run through the logbora (avernousa) whose Blood is at last pourd into a large kin on the back of Penie; when the Museuli Exectores act they endeavour to make the shortest Line and so compress this Vein against the Os the bu; the Blood then being accumulated distends percel the to; sporora (avernosa) majora; but to prevent a total Stagnation lateral Keins carry of some Blood by the Shin, which not run ining by the Os Cubis heeps the Bris from a Mortiferation is otherwise must una void ably happen

Betwiest the Sosieula Sommales and Urethra are two large Alando call Prostate which convey a Mucus through several Ducts into the Urethra, thro the Capus Galtinaginis verying to lubricate the Safrage; in the Urethra are were small Deforme, they towards the Glans on the upper part, which are call deforme, they have others still unalter opening into them: In poping the Cather ser first hold its Convexity towards the albome a till you come at the Capus Galtinaginis, then turn it ledeways to the left o Halde presently into the tolander; this Derection is to avoid the Lacur

na and hurling the Corpus Gallinaginio : In the Glans lonio are many small Glandule call by the late D' Tyson Glandule De

Dorifera. Whe lozpus lovernovum minus is erceted in the same Manner as the other when the Receloratores comprofs the Principaltern and distenor the whole but a Provision is made for carrying of some of the Blood by lateral topels; the arteries nourishing Penis are those already mentioned together with a few Blanch

Symphatich to the Groins ; The Tunichs are two one of the inclashof Substance a strong membrane, the nest is the Shin wonderfully reticulated and free from all Jut, for that would have been very improper here any Genie is intended for a rigid Body; there come times happens to be fat, but then it is protern atural & is to be looks upon as a Defeave; the Shin doubling makes the Propuce, which in flaming

and divlending is call & the far a pohymofis: The Emillion of the Leed in Contion is absolutely necessary yet independent of the Well, but is another Instance of the Cona mone Natura to relieve those parts which are in Danger of being hart, this is one of her troches determinates proplet Fine mife the Senie being distinded to a great Degree, the Levatores Uni contract, drdw up the Bochem against the Seminablecte with suffer the Semen through their Duch into the trethra with come Impelus, the Distension then goes of and the Trecom of Circulation is restored; some have smagind that the two loops ra Cavernova majora compreso the strethnasto force out the Somen, but the lave is quite otherwise for the Mrethow and Corpora Covernova may be considered as two concentric (ircles, conseequently whenever the largest is distended which is the latter retwill on all Bes distend the leper and enlarge the Diameter of the Urethra

The Parks subservient to Generation in the Temale Sex are

as in the following Order:

as in the following Order. The Mons for land on Eminence The Mons lengths, which is nothing more than an Eminence made by Sat being under the Rin over the Rubes in the Man? also are the Labia formed:

The Retoris is composed of two Corpora (avernosa arising from " aventic one on each Fide, running dotonward they immerge Exomewhat forwarder make one Brdy, it is considered to the Or But by and gament; this answers to the Penis inthen; two Museuli Exectores run all along whon the formus o in acting) compress the tein which returns the Blood against the digh ment and so creek the Clovis, as the Corpora Covernova becomes then Instanced: Temales have but these two casernous Rodies in the Citoris, convinces me that thefamous Ofrican Hermaphro Dite was a Temale; towards the hinder part are two Tolor cally Nympha which continuing to double make the Raputium Chroniois, they contain hoo cavernous Bodies loaded with Bloodtoficle; the Use of the Sympho w to direct the Urine & in for two swell p compress the Venus:

Within the Symphow is a Semilarar Folsing called Symen, its

Existence is denied by some, but it is to be found in all youngelib. jects and is very perfect in this which was 23 years old; it lies on the backward fourt of the togina; but upon the first fortion breaks Emakes the laruncula Myshiformes; its we is to quard against the Schulency of the male tile the Temale has acquired a Strength of Constitution sufficient to bear the Tatiques of uterine Gesta. The Urethra or Meatus urinarius is shorter and wider here than in Males which makes it so seloom necessary to cut em for the Stone; in it are vererab little Glands call Locuna; in fur nish a Fluid to defend it from the Acrimony of the Urine; The tagina is narrow towards the fore part and wider towards the Uterus, it has a membranous foat and vascular one; on the Inside are many Ruga which exist in all young Subject, but disappear when they grow ols; it has two thuseles calle onshie Hores, one on each Side running down towards the Clitories, uneder them are the Glandula prostata; they serve to constringe the Venalaterales and to determine the Veed into the Uterus; there is another hundle which is ascribed to the Uterus, but I rather think it belongs to this part, it is called Depressor serving to pull the Tagina bachwards and downwards, but it is not always to be found: The Atteres consists of three Coats, one membranous, one mus: cular and the other vascular; it receives blood lefsels from the internal Slians which inosculate very much both how and in the Lagina, but more expecially in the Uterus, to furnish the Satur

Tatus with Fluids; they form a great many Plexus's; the tofices here furnish Blood for the atamenia as well as those of the tagina : the Situation of the Uterus is between the Intertinum Rectum and Blad-Der, in form something like a compresso lear, with its trees downer, Jundus upwards towards the aboomen; it opens into the lagined by the Os Tines which has a very small Orifice in it; near the lexvix are several this of different Orders in different Subjects, made of the Tolorings of the internal Cat, in them are loog a little Glands call Corpora Globova which secreto a Fluid that serves to seal up the Or Tine oin time of Bregnancy; from the Sund us on each Side go of the lornua Utter which are small near their Origin but grow larger and larger towards the Extremity at which they form Fishbia; these are also muscular; two Booics are connec-Ited to them one on each Side call Ovaria, the Ova which these contain being boild appear like the White of an Egg; sub Organo arphrodos as they are embraid by the formula: The Uterus has how hinds of Ligaments, the one Latur a broduction of the Seritoneum arising from the Sides and Funders con--nech it round to the Selow; the other is Robinoum which are ever from the Lature doubled, nigh the Utorus orunning down is inverted into the Or Subis; this I rather think to be al nuscle serving to feel down the Uterus in Delivery, but whether so or not Frund down through the Muscles of the aldomer as the Spermatio lepsels do in tren and subjects Temales to one hand of Rubture, the which topage the Intertier fall into the Labra Sudendi

Mudenoi: Sobserved to you that microspical Observation has discovered to w afrodigious Number of Unimalcular in the Semen masculinum, there being thrown into the Uterus when it is in a periotal lich trotion, the Combictores then embracing the Senies, by this Motion it is conveyed into the lorgua, which being muscular o mot vermicularly through them they are donvely to the Ovaria, when They peredate into the Coun; receiving Rourish mont here butveup brobably in different Robortions, that the strongest destroy the weakest; this need not be thought strange, seeing it is agreeable to the constant Profusion of Native in all her Horke; we vie what a Number of Georne one Oak produces every year to propagate its Species, which is done that that there might be an infinite Chance for some to fall into a proper Nidus to be nour whee; these animalcules irritating the Ova invite agreater Quantity of Huida to them; a gentle Inflammation is raised and an ashesson is brought about of that which is to be the future Off spring, and grown zing too large it bursts and falls down into the Cornua and thro that into the literen, there it achores by Inflammation again in denominates the Place of the Placenta, and it is very reasonable it should athere to one part rather than another : They och had an Opportunity of dissecting alvoman that was murdered in the ack of asultery, and found the Semen had extend the Cornia and these Ova have been found in all parts of them, some where the animal cules have died in their Papage, by Jaying too long in different

Haces; Thave veen the Periotalisch Motion in pregnant Habbita This Account is confirmed by what is seen in Birds; and all oriparous anismall have a Sort of Eggs which are existent before Imprognation from the male; the Ovum of a Bird being impregnated by the fock it inflames, and where the Calie has the fewert Blood refisely it is weakzest p burch; vo it is in the humane Subject, and being fallen into 4 Uterus it inflames, adhered and grows by mutual te feels to it; but the State of the Satur in the Homb will be considered in the most Lecture:

Many Questions are proposed upon the account of this Bothine, as how the Infant takes like the Male one while, another while the the Temale; the certain that the Difference of Soil makes a great Difforence in animals as well as togetables, for the Sheep which come from the lake of good hope are so different from ours that unless we bestold they are theep, we eshould be greatly at a Lofe to know to to call them; so the Rious of the Mother may easily make this little hange of Conformation; State has observed that Inules are always of a different Sex from the Us;

Or cometimes happens that the Over bursts too soon Estalls in to the lavily of the aboomen; this delon a Surgeon in Town had an extraordinary lave fell under his Observation, it was this, a Totus lodging in the town a had all its Bones an chyloving by Opifical; because it was here too much confind, is shows the Necessity there

is for it to fall into the Ulerus: The the Mosthere, nothing certain the the Marks of Chiteren from their Mosthere, nothing certain

tain has yet been said about them and many great then have of sover one another in accounting for them; many other fearth cular there are equally unans werable; but many of the Marks ven in the age of a lile who had Dew in one Eye and have of them home age of a lile who had Dew in one Eye and have in the other, it made a great Nowed to invited many lookle to go and see the lile; upon to allow was provided the lile; upon to allow were went from this syna gogue to see of it was not the trefie ah, at last his who have how to make a proper Edamination disconserved the whole theel for the earlies on by Ilafren Eyes,

Lecture 29th

One of the first allerations after Regnancy in alloman benders the Northing of the fast amount is an encreased Haraness of her Break; the Northing of the Satamenia is an encreased Haraness of her Break; which consist of Unteries lains a glandulow Substance some Sat which consist of Unteries lains a glandulow Substance some Sat which here have been various Opinions, the most generals is that the a chamenia being stopped the telefield are universally fuller but purticularly the Breaks for the Ulirus growing larger comprehen the covernous for the Ulirus growing larger comprehen the covernous for the Ulirus growing larger comprehen the covernous felicles over causes the vapekness to be more intensed; but this will not determine it more to the Breaks than to the Arad, or any of the upper fearly, but vay they the Breaks than to the Arad, or any of the upper fearly, but vay they the Breaks than to me a greater. Quantity; but was the the lave whonever the Calamenia are vulp-

- profet or there happens an Encreave of the Fluids as to make what they wicians call a Methora, there must follow a Secretion of Milh; but the contrary is evident; for that never happens but in Regnancy; and in milk has been preparte, if the Tatus dies, it runs out and there's and no of the Secretion; who can look upon this, but as another Motur determinatus profiter Finem; the Fluids are determined to the Breach by a Tonich Motion at reproper time, and at no other but when requirite, so when the thils by any decident dies, the Tension is removed the ner--vous Shicture is taken off, and the Wilh is dis charge; all this is done without any mechanical alteration, for here is the warme appar reater at all homes & therefore it can't be performed by an unaltera = -ble mechanism: The Breach receive topels from the anterior and posterior avillary arteries & likewise by some of their own The Uterus after the Supprepion of the Catamenia in Regnancy grows larger and thicker and at the vame time more lax; the musreulars Fibres become more visible and the Vefsels are fuller; it was thoughta Paradox it should be thicker when more distanced, but this is owing to the encreas a Tulness of its topoels; it is thicker where the Placenta atheres than in any other part; at this time it is the Capo: na Globosa are more conspicuous which vecrete that Gluben with reals up the Uterus to prevent the Injuries of the external air -The impregnated Ovum having burst in Chalix where afterwands it cicahizer again, it falls down into the Uterus, but I have to observe to you that where the animalcule asherd to the Ovum is the Place of the Juhere Navel, but why it should always touch in one place, I can one by give you conjecture, the it is certain where there is a constant offeet there is a constant heaven for it, it may be owing to the fent woffpare

- by which determines that Point and no other; being got to the Uterus it asheres there again by Inflammation, when there becomes a mutu: al nosculation of the bels which form the Placenta, this is the Meriour of Communication between the Fatus apo the Mother, the at the same it is connected to the Uterus all round by a reticular Substance but that arhesion by the Placenta is far the strongest, which I think rather belong to the Tation than the Mother; an Orum which had been impregnated about 5 or b Hacks appears all round to be Placenta ex cept one little smooth place, which grows afterwards in a far greater Roportion than the Placenta; it asheres most generally to the Sunow of the Uterus, but sometimes a little on one Tide; it to feel are two On: teries and one tern which hoist together and make the Junio Umbilicalis; there make a large Plane of the fich in the Placenta itely, both Anteries and tern inosculating provigiously, which was absolute ely necessary, for as it happens sometimes to be separated, the lists by this means is able to live some little time the not brought into the Horle, but it is necessary to do it after this accident as soon as popula: The trembranes which on close the Faties are an Expansion of the Orum; the Phorion which is the external one is greatly loaded with Blood topsels and on that live next the amnies has a villose Uppear ance from these go of the Symphatiche which make up the Somios, which is to be considered as the secretory Organ of that Fluid in it the Tatus less; this Liquor grows thicker & ropy towards the latter months as the thirmer parts are exhald; its Use in to keep up an ex -quable Profoure in all the motions of the Mother): In Brutes the Turns Umbilicalis is made up of two Orderies, two

kind and an Urachus; by blowing into the Urachus you may distone the Bladder; but there is now in the human Subject neither is there any allantois for that is nothing but an Expansion of the Urachus, or com tains a Sture manifestly urinous; a classion as of the Orgion has been mistaken for the allantois; its Situation in the wellin male that have it is between the Chorion & Almnios; the Urino of the human Fature is secretar by the Mother):

Instead of allacenta, Brute animals have little Macontula called Colyleoons which receive and ane receives into little Frings setuated round the Uterus; Some Scople cale the Fungi Cotyleoons which Hord signifies (arities but that is improper, since the hue Coty ledons receive the Jungo and then send out to feels into them; they are made up of Branches of the Umbilecal arteries and Veins; these Jungi on weer to the Thickness of the Uterus where the Placenta acheres: The Umbilical Orteries run down on the Rise of the Bladder N invert themselves into the internal liacs, the tein runs to the land Borto & opposite where it enters it is the Duches Venofus carrying Blood into the Venalava, both this Duct and Vein afterwards dry up, their live is that an equal Quantity of Blood might be circulated Quest Printer Sees Sees Printer Branch.

this theretween both before and after Birth, their Dispose tion is represented in this Sigure, where I was posed the tenal Imbilities in the Satur to carry a Enaching of Whose equals to 4the Spanich the senter rich, Wellice Views emplying themselves into the Parts, of a Quantity equal to b. the Queter Venofus abstracting 2 the rest

Umbili pleater de Caline

is equal to 8, the Umbilicalis drying up with the Duches Venofus bonly is left to circulate in the Liver but as the liscera grow larger and larger the Quantity of Blood they supply the Liver with will be carrand as much as to equal that Deficiency from the drying up. of those tefeels:

The Lungs of the Fatur are much darker, before breathing than after, they then will wink in Hater, but when once the dir has been inspired, the impossible to prefe it wholly out again, so that from that time they become specifically than Hater and will not wink; this is of User in Sucreial anatomy:

Another material Difference is in the Heart, where the Blood of " inferior tena ava coming at the two Auricles is admitted into the left which is closed by the Value closes, or into the right according as either happens to be in Contraction or Dilatation, there is one thing more which is the Canalis atteriofus going from the Sulmondry Artery just where it entere the left Lobe; into the Clorke descendens: Satures too have a Gland call Thymus vituated over, there Heart on the Owending topols, which granually disappears after Birth: D' Plumbree supposes it to be a Symphatick Gland to secreto a Fluid vomewhat viveed to thicken the rest of the Ruise in the Tatus, which otherwise by Reason of the Tenderness of the topole might bewalget to handude thro' them; Couper imagines it to be a Diverticle to the Cayle, but ashe has not explain himself, his Opinion is not much

receives: Jeome now to consider the legenlation of the Blood in a Sature & before told you that the Blood coming by the tenalova to both Cluri ides, would be received into either which voever was disposed for it, being got into the left awricle the Foramen Ovale is shut and the United

wich in dilated, contracting again by its natural Tension & Resulto clasticica; the Blood is the own into the left tentricle which then is dila-Ted getting bekind the balves, and the tentricle contracting the Blood is thrown into the Clorks Avendens, which again would throw part of the Blood into the aorta descendens, but that artery contracting at a different time that in when they is delated any Blood is present teo from passing into it; the Blood then passing thro all the Bran : sches of the arta ascendens, its finer founts are spent upon the Hourishment of the Head and other superior parts, when the grofs effeto Blood is returned by the superior lina lava into the right Auricle, which delating receives it, and contracting again drives it into the Gulmonary artery, but part of it by the and of the ana: alie arteriofus in thrown into the Clorta descendens, from thence in to the Miacs, Emulgents and Umbrical arteries; so that the Son-La descendens is not fell by both the Clotha ascendens and Pulmo-- nary artery, for then it would always be delated, always fulls, but it is filled when the arta Owenders and right durille are inten haction; the logue quence of this is that the vafoid and effote Bl. which had circulated through and spent its Hourishment on the Head and upper parts which most require it, will then be resturn to the thother, which Consideration alone, providing the Arguments on both Sides are equal would be sufficient to de = Hermine the Controversy in favour of the Doctrine; for what wo great avantage con result from any Schome as this where " mother supplies the hild with good Blood and receives the defeca Sted; Some have denied there is any (inculation of the Blood in as Fotus

Fatur as did Harvey, because vay they when the Placentes acheres of the Funio be out no Blood follows; the lase is this these are all parts belonging to the Satur but with great Propriety the Funis is so pow to be look's upon as an Extremity, so if you cut off a Vinger. the Blood will not run from it as from the Hand and the face is the vame here; but the Condation is proved by veveral Observa tions; if the Mother be wounded and dies the exceptive Bleeding, the lists will be found dead likewise from a proportionable Loft of Blood; there was alaxe fell under Heisters Obvervation, of all man who had Twins, the Placenta separated, attamorrhage fol Lowd which hill both Mother and Hilbren: Others allow there is afreulation in the Total but afeert it received its Blood by lbs worktion; now pray observe the monstrous Extravagancy of this Opinion, that a Reto whould receive athin chyloud Hisio, and to the Disadvantage of very weath to fres, no thespiration, no Exercive whoule Sanguify it and restore it to to the Mother; when we see that many doubt with the Help of hespiration and exerceive wuch as Chlorotiches are ware able to perform it; that the (Bilo should receive uncon cocted fuces and pay the Mother with concocted ones instead of them: But we find Homen are most subget to abortion in the first Weeks offenception which is always attended with great Hamorchage: There's an Objection to be an eswered which they bring against it, that no Injection can be made from the Fatus to the Mother; but this is wholly owing to the extreme Tenderness of the Vefuels, for one breaking the whole dig is stoppe; and do but consider the State of a thertified Limb, where

the the great refuels remain entire the Ruids can't be proprieded through them because they yield too much to their Proferre, the vame happens in the tenere to fich of a dead Tater :

I shall now explain how this (hange of the Tourse of the Blood hap pens after Birth; the hild no sooner is brought into the Horle than it wets up a crying upon the Lungs distend the air is dometted and by the Compression of the Thorke and Diaphragm is forced out og, His Motion becomes alternate; the Canalis arteriofus from the Distention of the Lungs is so whatch I that its Diameter is conside: really lefrend, but the more so by the Pericardiums pulling down of Works when the Diaphragm is complanated, and so hinders any Blood from passing this wigh it from the Pulmonary Untery who of acta; but at Intervals for some little time the Blood may a little of it get through, and this small Irregularity may be attended to no worse for sequence than somewhat inflaming the anal which makes it the vooner close; but sometimes it happens really to more rify, o bestoren often die of a Mortification of this part, which is a farther Confirmation of what I advance; but when it closes it becomes a Ligament always to be seen in abulto; The Umbili real arteries andleins dry up and become the Ligaments of the Bladder; but with Regard to the Change of Groulation; you must remember the Blood is now thrown into the aorta descendens from the Morta Ascendens which is when the left tentricle contracts, the dorta will contract when the right auricles is dilated, and so the Blood instead of entering into the left auricle must enter onto the right, and the Exculation will continue as before explain to to

which an Objection has been made, though not of any thinglet, for Jon of ymention it that you may be propared whenever it shall be officed, it is, that the Librer of the French are continuous, and therefore say they the whole must are a the same time; but the longitudinal Fibrers of the Interfere a are continued from one End to the worker, in are musicular too, yet it is very well known that one part acts when the other does not, and so it is in many other thuseles, neither is there any therefore by it should be otherwise; besides it is constantly to be adhered to, that in alle levences, Observation whould not be looked upon as Objections, and though wothnow a great deal more of it remainings to be over covered:

Schure 30th Dody & animal Secretion:
Through the whole fourse of these Sechures we have proceeded by considering first the inner most foarts, When the next succeeded by considering first the inner most foarts, which is not universal; but more so in Bruter than in then; in this the Hairs are set obliquely, that by its Oction when the Beaut is frighted or apon other particular Creavions they are made to stand upright; these that this her of a fat are set in a trusch of this kind, lederaly they are brought forware, turning round as it were upon their lases; there are but two Instances of this in than, which are the Ocer-

the same; People can vivily raise the Hair of the Scalp when they are afrighted; without this lies the Membrana Wipova romposo of fine arteries surrounded with Visites of Oil; this is not equally on. tributed; the foints are free of it as it would obstruct their bending; the fine Branches of arteries have also their tims and Lymphatichs it gives the Body a smooth Continuum, and lubricated the Farts by y. Oil handuding thro' its Cells; it accompanies the common Coat of the tolecles: The next we come at is the luties which consists of inclassich Tibres highly degenerated, and we may see the Tibres of the Tendons of must cles Stiking of in many places to form it; it is for the most part retiform dapable of provigious Stretching; we have an account of aspaniard that will superhis Jaw with ther thin of his thosmen, drawing it from either Fide, which would then return a garn to the place, in general it is equally woven and capable of the sching laterally or longitudinally, but more if pulled obliquely, like attest drawn from Gener to Corner; the Blood topselv are in most places equally distributed in a retiform Manner, but on the Hands Tipo of the Fingers, Ball of the Foot and Toes, the smaller Bransched be parallel going two and two, leaving a wider Space betwinst each two, these make the Ville which arive and stand in the same Order like a double How of Bins; malpighius having discovered these thought he had found the Organ of Touch, whagining they answer'd to the Sapilla Ryramidales of the Tongue which he calls the Organ of Jaste; those indeed are the most applicable, but you have seen that they consist chiefly of Blood lefsels, like in Up =

pearance to a Pile of Velvet, they are long and thin, on the Lips too they are very remarkable; in Proportion as your Injection runs well you file them, which shows they are Blood topels; the smaller topels of the Shin thus running parallel and the larger under them in a diffent Direction makes them look like Inosculations to such as are not conversant in these Objects; thelese of the tille is to sescrete the Materia persperabilis: In authors we find an Account of miliary Glands, but what

they call so seem only a bad the presentation of the Tille; and that they mistake the till for them no Orgument besides this is required that where the till are most numerous you find the greatest temperation in a warm Day; the hew Glanoula Mile ares are intuated at the brooks of Hairs, of a different lise from the Organ of Perspiration, serving to searche This to moisten The Hairo:

The Use of the Rin is to cover, the Kody and to be the least often subilly to warn us agains! Langers, and this is wirdent from the true Phinis being of most exquisite Sensation; for the Cutick being rais & by ablister, the Skin is far more sensible to the Souththan the Bottom of the cleanest Uler;

The tills ramifying finer and finer make the thete mucosum of which I shall give you a quite different dea than authors have done; there I say ramifying both from their tides and extremities make this Membrane; others have considered it only as a Mucus between the lytis and laticle; their mistake proceeded from their Manner of preparing it; for taking a tleake Tangue they tore of g

Luticle and that means lacerated the Tipo of those Tovo which sheath the Ville and from this it took the appearance of a voft Intermedium only; but these Tove a are not perforated naturally by the Villi, but exactly cover them every where corresponding to their Buth and Number; the Spots which some teople make in their arms by your spowder, have their Seat in the lutes, for Blisters will not take em of; but this membrane which is made up of very short tender tibres is the Leat of that Variety of Colours seen in all Animals, the lution all is red and the luticle transparent; the heter Mucovum of a Tauny in dark brown, that of the Blacks is black, but that of the Europeans is white; the Deference of Colour in the Boaks of burds is owing to this; as is that of Serpents and Fishes, which seems as if it were interior for the Revervation of some particular Unimals, whose Colour wourtable to the Place they inhabit; we wer many inwher of a different Colour on their Backs from that of their Bellies, that the Twher of Prey who swim at the Bottom may be the more eavily decrive by the Shy, those that swim above them are decrived by looking downwards; and we are informs that in some parts of the Morth, Foxes turn white with the Inow: The leticle may be considered only as the external Lamina of the Fibres of the Rete mucouum covering the Mouth's of all the till both of the Shin Stomach and Intertines, verying to moderate the Secretions, and to defend the more vensible parts; and the I always thought it was continued from the external to the internal parts yet I never was so fortunate as to discover it till the last

Subject presented it to me going down the Gulas, which you may be the Inefier of; no one have taken the least Notice of it yet; but Samutrongly of Opinion that the arteries are lind with the same, for I have often made Observation that such as Sied dis -cased their Blood would which to the Sides of the arteries, but healthy Blood would not, which I attribute to this membrane being abrades by the Attrition and acquired Acrimony of the Blood; this is the true Epithelian; The Hair is another (evering of the Body but not uneversal in human Subjects, it arises from a bulbour host comething like the gain of Oaks covered with attembrane; it contains Blood topsels which iny On are not perepieuous; their lituation in Man is chrafty under the Skin as it is in Hogs; It has been disputed whether the Hair has a regetative Life, or is nourisho by the Greatation, some have maintain the for-- mer aporting that it grows after Death; the Mails have been consis of the Hair of my last Subject as I thought with lows, but upon a clover Examination it plainly appeared to berreal bloody Forum thous in by the Hax; so that its life is plainly supported by a Stuid circular sting in them, and depends upon that of the Animal, and as to the tails the bare Observance of the white Spots is enough to comine any in partial Man of their being now with by the Carelation, as they are man enifostly forthises forwards by the Huins; and as to their growing of ster Death it is more Tallacy, and only vams so from the Shin chranking and rehacting from them; I have held both y years and could never observe the least Encrease of their Longth; but to high

to the Hair there is a Difease in the northern parts of Toland call Pleas Polonica, where the Hairo is britted together by a glutinous that ster p if cut will bleed tile the Patients dies; no Means can stop it's this evidently shows them to be vascular; The Use of the Hair in man on the Head is to defend it from the Injuries of the lies as hesving a larger Brain, a greater Surface, and a thinner francum than other animals; upon the Eye brows it verves as a Shade to divert too much Light from the Eyes, and to direct the Sweat down the Joes; on the Eye Lids to what out Light when too refulgent and to heep Invects from flying into the Ego; on the Lips of both Jaxes but particularly the male it apriors the Organ of Smalling, for Hair being electrical Bodies expecially when healed attact the Doriferous particles and other small Corpuseles of matter; this is the heavon why those animale who have Whishers can't smell so well when they have lost them, and we wer upon these? Occasions they always wet them up; On the genital parts they serve to attract the Odoriferous Particles which stimulates the animals to Kenery: Before Sepeak of the Secretion of the Shin it will be necessary to recapitulate what I have vaid of all the others; I have divided em into two kinds simple and compound, the Simple requires only an Ortery lein and Lymphatick with a plentiful Supply of Sluid, this is the Glandula ex Officio; the Sin, Peritoneum, Peura, Pericardium Willie of y Intertines and then are of this hend; the Compound is where there is a large Opparatus, as in the Liver Souticles & Sidneye, by which the Blood a robbs of its more fluid parts be for Harries at these Organs, and the societie Sheid in after we wanted

rendered while thicker by the lateral Lymphatiches of the source tory) Suber, theser are Glandulas exforma; Perspiration is of the former kind and is divided into venvible and menerible, here the till ido not admit the mixt mass of Fluids, but the thateria Perspiration les only; Sensible Seruperation is what we call Sweating, is" the Mother is condend on the Surfaces of the Ring and the the Modus of secreting both have been considered as alike yet they are wively different; for do but call to mind what is done when we we make a leven sweat, we give Opiates to relas the thin, a great Quan tily of Liquer to delute, and aromatiche to give an empetus to the Huids, the tille now are wider, the Sluids thinner, and driven with a greater telocity, so that they will pass through feely, plentifully & be condened on the Shin; but invensible terspiration is that which is performed when the Tibres of the tille have their natural Tension and the Fluid is spurited out and theover a trome Distance by the Sm. petus of the subjacent arteries; not continual as a Steam from a Sea hettle, but alternate as the arteries contract forcing it out in hight Lines, as may be seen by holing the Tinger in a warm Day at about an Inch Distance from a looking Glass : Now in dying Brown where the Oction of the Nerves is just at an End, there is but little Contraction, here the Huedo run out almost continually and make those profuse Sweak observed that time cole and clammy; So that now of these secretory Organs are to be considered as more Perces of Mechanism; for Seant help thinking from all the Reflections which I made upon the Effect of the Saffions, " various (greulation of the Fluids, and from the Thanomena of

Difeases, that there is a governing Principle in the animal Cliono my, which ack, directs, and governs the Determinations of the Huids, and sets up or rombs the Pricture and Tension of the Fibee pro re nata: The Phanomena in an intermitting Tever set this in a great Light, first there comes on a Colonefe, whevering, Dry Chin, neither can any Ort induce as went tile the Patient grown bed and warm externally; this Mature will do without any Help or Ofintance by determining spontaneously a greater Quantity of Fluids to the exteriour parts, this is purely from the action of i Morves on the vecretory Organs, where the Spricture was so great at first as not to admit a sufficient Quantity of Sterior which by Their Motion would heep the Body warm; that being remitted, they enter and circulate with a proportional Freedom The Dispute in the last age about the Commutability of these recetions occasioned a great deal of Mischief; for if one berobstruct rted it cannot be supplied by the others, for the indeed some of the Materia perspirabiles may be carried off by Urine, or some of the wrinous Shied may be evacuated by Perspiration, yet the whole cannot because one Huid is theches than the other, and if the Urine be brought too thin, the verous parts will for the most part only run off, and the real wrinous Salts will be returned into the Maps, and if they are long retained they will bring on de wer begen Inflammation and at last the ferson will die of an universal Mortification, and so it may be said of the rest; they will partly supply the Deficiency but not sufficiently to pres werve the Health of the animal: Lecture

## Lecture 31 dt

The Common Nitriment of the Body is the lighe, which is nothing more than Will delated; when with is viewed in a Mi = - croscope it appears to consist of Oleaginous Bodies dismining in a more limbed Fluid; the vame is confirmed by spontaneous Separation of the voily Particles which then Swim on the Jok of the verous; so that Milh is Cils and Water midd together by " Mediation of abolt; I concretes with acids by their attracting the grofices Earth Salls and Oil, but mineral Chiese do it hove effectually by attracting the fine as well as the groper; but in weak their are employe, or its parts separate spontaneous ely the fine Salls and oily farticles are while incorporates in " Scrum; when it is conquilated of rubbs with volatile dalls they will reduce it to the pristing Staidily , which is of some the to be known as Wilk coagulated in Homeing Breasts may be revolve by their live: By heat it becomes red, for writing with it and holding it to the The without scoreting the topow it wills turn red and flong continued black; this is only searching the Will which becomes so with a left Degree of Heal than the later, Boild with Lixinial Salt it becomes red, and some infer the hinefe of the Blood from the action of the to frels; Therein a cort of Cagulation which we call hospings, this the verous p in in Sect to by being hept; Oil Salt and grup makes an imule, but if you use dyre de Maconio you spoil it, the powil not incorre

porate : The Blood upon being let out of a tim is observe to separate into two parts, the derum and (rapamentum; but if you heep stire ring the Blood in the Recipient as it falls out of the tain, a fibrous part will athere to the Stick; this is what makes the Foly put for idio, which when it is taken Notice of is always attributed as if Couve of Death; In the Beginning of Hiveman's Surgery, there is a lage of this kind vet forth with great tomp in a Latin Letter to him from an ingeneous Physician, relating the lave of a Gens Haman that died some time after he had resion a mortal Hound; his Body being opend a polypous Concretion was found extend from the Heart into the left axillary artery, upon which the du Thor says he was amago to find such a quest in so fino a talace; now the love is really this; the blood you see has many of these Tibres in its Composition, so in the last actions of the Heart & Arteries the Blood is move so slowly and irregularly, that they can willy concrete against the Sides of the topuls, and this is always the lave more or less in every diseased Subject, but is itself no Difease except in Lypothymias, when the Blood is apt to form them if they often happen, but for the most part they are formed in Articulo Mortis; The Quantity of this fibrous part is varia zons; when it is reparated thered Globules remain suspended in the Serum, but this is specifically heaviers, if viewed in a. Microscope the Globules appear semi-transparent with a red wish last, for the Redness of the Blood itself depends upon the aggregates of many of the Globules; droped into Water they makes

kind of Coudings round them like Gum Refine; Lewenhorch vayo they are of equal Bigne for both in Fetures and Boulte & afterne that one of these make & of the next Order and so on to the last, how far this may be true I can't pretend to determine: they are of the same specifich Gravity, their Use is by there is ture to give Beat to the Body and as you valut act the red Blood you cool the animal; Oto People who make Blood nevery slowly often continue cots a long time after bleeding & There red Globules by the Congulation of an acid are turned black, Wolatite alcalier attenuate it but furn it darkink and of that mortified Colour observed in Scorbutich Rople; fixed al cealies attenuate it and exalt its Calour to a fine bright Som Set; With Regard to its saline State, in healthy Boble it is rain other aced nor alcaline: The Sorum is coagulable by a certain Degree of Seat mea . werd by a Ther hometer, Boerhaave made his Rognostiches in Severe by the Use of this Instrument, as knowing what Degree of Cagulation the Blood was of & how soonlit must be unfit to continue the Cocalation; A Heat much left than boil ring Stater will conquilate it and make it opake; the this varies when you take Serum of one which inclined to Putrescency, or had rolatele Salle mix's with it, for it will not be conquelated tile therestatile Salls are dispipated, but will be transparent, il then requires a Seat greater than that which will melt the ster. These are useful Experiments, for from hence we may infor that in a cute Tovers, where there is no Disposition to Patrez scency, but a Fear of Conquilation, tolatile alcalies will be of great lise; but where there is putied Disposition they will be highly injurious; it is generally vaid line gav will not cooqulate the Blood, divhills tinegar incees does not, but that is an Que not very concentrates, but couls that be concentrated by copper or other Metal without Mixture Selieve it would, for perhaps deis only differ in being more or less deluted; Henegar be apristed by a small Degree of Heat it will congulate the Server: If we consider the Salts of the Blood they will be found to be ammonracate, but with this Difference, that Sallimmonsac to a vtable neutrals all, but there are changeable wither by an strong Fire, Putrefaction, or too great a Motion into a volatile Alcale; their the is to heep the other Principles from concreting, to preverve a due Huidity and to stimulate the tefsels: The whole Maps is a Composition of Fluids of different Orders, the first is the red Globules, the next the Serum and all the rest how different voewer in Bulk come under the Denomination of Lymph, the whole at a moderate computation makes up 7/8 of the whole Mapin Earth is another Principles obtain & by driving away all the others by Fire, every part of the Unimal contains a certain proportionable Quantity of it, but the Bones have most: The Roportion of Fluids to the Solids is that the former make

morethan 56 of the whole animal; their Users to nourest

the animal for its Growth and actions:

we

We are now to see what Nutrition is or under what fireum estances an animal may be vaid to be nourished; it depends then upon the lighe being properly exalted and afirmilated; if the hylapoistic Organs perform their Office, if the Valiva, garrical, panerealic Juices and Bilo enter the Intertines in a proper Quantity and due Degree of activity, if there be a right Tension of the Tibres and due Respiration to mix and bring the Uliment into the Form of Phyle, not too langued, now too etimulating, then will it be brought into the Blood duly exzalted, being then carried to the depuratory Organs, such parts as would be injurious to Mutrition, or the Health of the Unimal must be conveyed away; ther Polides too must do their Part, before there can be a due Nutrition; in them is required a his hopels viva & Laxilar Heceptiva; the former, that the Hinds thus propard may be sufficiently propelled; the latter, that there may not be too much the istance to the Entrance of the Fluids into the final primary Tibres, for if the Tibres are loo rigit too much or too little stimulated, the Fluid cannot enter those which require to be nourisho: There are several Indications of a good Hourishment, the Body will have a proper Horionefo as the Membranes of the Thin are transparent; there will be a proper Julnes; the Def foronce between lean and fat leaple does not consist in a differ rout Samber of Sebres but in their being deferently felte; there will be a proper natural Dogoco of Heat, whe as is necessary for Motion: There will be Presigth according to the apacity of

the Museles to receive the finest Rued into their texicles which being fills the Fibres become cylindrical and touch one another in few Boints, & so wile easily move over one, another, their to show for will continue longer without Lafritude; but if the Stude were too thick or two sluggishly pushed in, there would be low great a Contact, too great Friction, a Gemora in their Cle tion which convequently could not continue to long, but will be the vame as of the animal was loaded; another Sign ( Benefit from perfect Nutrition is thength of mind, which the it is contradicted by vome in yet confirmed by Observation, for the taletudinarians veem to be more ingenious than those who awing good Health, and well nourished, yet that proceeds only) from their donfind at home from agreable Diversions, whon which they acquire a Habit of clove thinking, but the most healthy can if they pleave apply stronges, and continue long. rest at Shirty; The Secretions are Inother Indication, for under this Disposition they east fact of having the Huist duly applied to the cheretory Organs: Nutrition is observed to be greatest when were less, for then there is a general Daily, and free Comitance to the nutritions Particles into the minus steet Fibres, whereas watching heefs up too great a Tonsion. Hence we easily perceive what Growth is, depending on the same Trinciples, on an Clongation of the Tibres by the Fluids paping through tham; he Store of those who good fast that they have tain in their simbe, for in the lave the Tilres are under a Sort of Distraction from being fill to for fast and thereby be much

much distended; Some grow very much in Defeases as in the Small tox, which is owing to the this Ropulsiva being enere and is before was too languid, so the Fluids being carried with as greatered mpetus they make an Congation of the Librer: Some grow very fast after Difeases, which proceeds from the Crific having carried of Those Toculencies which were accumulated in the Blood and deshoyd its due Huidily; but now it passes freely thin the remotest (hannels and conveys the nutritions Particles to the Part required; Those who live in moist low places grow most; the Lincolnohire Horses are stout; but those which come from Wales are small and strong; So the Swife who live in mountainous Country are where and small, but strong; wheneas the Dutch that have a low watery fountry are stout broad & flatby not so afot to motion; this proceeds from the Laxitas Heceptiva being so much greater in them than in others: Sud den great Spouth is observed to be followed by Consumptions; now this proceeds from more of the aliment being thrown into Hourish ment than whould have been, whereby ther Secretions are deprise eved of a great many Particles which are assimilated instead of being carried off; so their Office becoming inequality, there is at last so great an Accumulation of those Bar heles in the Blood that they stimulate the tofsels to Inflammation, but the Lunge being the weakest, will be the first fants that are affected, some of their topic is will burst, a Hamourhage more or less ensues, andleeros ucceers, which ends in the Consumption and Death of the animal

It is easy to verthat a mar as mus is nothing more than a Hant of the Fluids circulating through the Fibres; this happening first in the Lungs makes the Athifis tulmonum, upon this the Blood will not be sufficiently triburated and attenuated in them, so that it will return to the Heart loo thick, and uncapable of paping thro the fine Fibres of the Body, besides this there will be a febrile den wion and Want of the Laxilas Receptive, the Liver will become schirous and us oceasion a hetension of therbilious Salles in the Blood, which stimulating too much induce a Fever bloo great Towion of the Tibres from which will proceed a marasmus; to Dropey whether universal or particular may arise from aschirrow Liver, the bilious Salts stimulating the to feels to a Tension, the Lymph will not be vecroted from the Maps, the topsels will grow diviended and burst, or else the Fluid will hanvuderthro their look; the lower parts growing big & pulling upon the uppor Vehels will lepen their Diameters & make the Face and arms which whilst the Lego be swell; Long continued friefwill bring on a Marasmus by kindering the Return of Sleep, the Fibres with grow too hense to admit their Fluids; the sometimes it will pro = reced from a different lause, by Grief bringing on an Invensibilis ity and then the the propulsiva will be wanting; Mania wa violent Degree of Tension without a Tever, the Convequence of which is casely discerned; Pain long continued will make the There rigid va that they will not befiled; an Heetie Fever will be attended with the vamo Hect; So that in a Warasmus were there is a Diminution of the Habit from the greatest part of the

Topoles not being fill; there must happen a Lapitude from the There being in too great a Contact and the Hurde too grofe, for not being cylindrical they will will be moved with the greater Deficulty; The littur Squalofus is another Conveyuence be cause the tray oflight are differently refracted in different Me Soums: Whitenefu of the Songue attends the Hectio which al--ways comes on at the Root being the hollest place and goes of at the Tip, this proceed from the till i not admitting the red blood; The Effect on the Utrine is in making it aily falls, and reddich; but oily de ine coll in vary rare; the chin which makes them give it that Denomination is not fat, but is what I have before axplaine, the sometimes you may perceive one on two Deoper of Oil on the Urine; a great Colleguation and capid low lation makes the fated Wrine, the Salle attracting the Earthy Particles make the pint or red coloured Sediment; there like = - wive will be a thange in the Stools for as so great a Quanti by of Thirds is dericed amittance into the topich of the Surface they will be determind to the Nomach and Boweld, hence here wolk do a much larger Secretion the Stools will be liquid and serous, and little he no Bile being vecreted they will be white; The Mails Shave tole you are nourished by a Third circulating thro them, but being deprive of that by the higieres of the Ithow they become crocked . This then being the States of the body, the action of the Seart will grow more and more langued, when Mywill become to Heat, that not being able any longer to threw of the Materia Por pirabilis, the poor Diject will go off in vivcid coto clammy weats:

## Section 32: Of the immediate laufes of Death:

Having now gone through all the Parts of the Unimal Ocenomy and considered the proper action of each; the Stosmuch and Intestines to prepare the Chyle, the Lunge to mix it with the Blood and comminute it, the Acart and activies which convey it to the Parts that want nourishing and conwantly whand in fleed of it from a continual Dissipation; and as the Unimab is in a high putrescent State we weed y Sceretory and Exerctory Organs are provided for the Depue ration of its Taculencies, the Lungs too are preservative to it by admitting are to cook and heep down the rising) Heat; the Trachea, Jances and Jonque are the Instrum of toufication; we have examind the Parts appointed for Rollfreation, and the different hinds of Sons ation; from the Survey we are brought to confe for that all of them land to a manifest We and Service, as we plainly see that they all are built to preserve him from Subrefaction, external Inju view, and for the Tropagation of his Species; but as Man con wints of Parks which are constantly wasting and decaying he becomes subject to afarichy of Deaths, The the immediates Camper are reducible to five ; I don't look upon Life to be be cause there is a (realation, but there is a fixeulation because there is Life, and this Leforishept up by some governing from reiple; call it what you bleave, the thinking Souls, or after me;

the Unine ; however Life and the Cocalation are inseparable; for that being destroyed in the immediate Course of Death:

One of the Means whereby this may happen is, where there in not a Continuum hept up by the Raids from the left tentricle of the Heart to the hight auricle; for the Artories being combant by ful push on a certain Quantity of Blood into the loins, where thy just so much as is driven out of the left tin brick of the Strant, will at hatvery Instant be fored into the right duriele throig Tina lava, but of there be loo little blood to perform this the a nimal will die; Hounds of large tofiels or of the Heart are one Means whereby this Deficioning may happen; for the Blood must be intravasated and note who vasated; Hamorchages liberise the from a Conamon Halura carried too far, The Blood may be too much exhausted to leave a Sufficiency to heep up the Con-Jinunn; Other Evacuations the serous with Chewise doy same thing when they are profuse and long continua since they beares great a Reportion to the other parts of the Mats; for the the tein have a natural Elasticity Lyo a tower of adop. ting the melves to a decreas of Quantity of Sluids, yet when it comes to that Degree that they are not able in all parts to prefe upon their Contents, the Blood naturally gravitating, 4 Continuum will be lost and the Animal must die! Another Cowe may be Inanition, for after a great Consumption of ? Huids, and a consequent Heatings of the Notice there a long March, the Patient being taken up whall swoon away and die; the erect Posture is very dangerous in this lase, where from 9 qual

great helaxation of the topols, they are too weak to keep the re-Surning gravitating Hund in a continued Stream to the Heart: The Paracente fix is what several have died under, not because the Prefwere upon the tepels only was taken away, but because year avasated Huis had acquird an derimony which by stimulating the lefsels to a greater Contraction enabled them to heep up a small Quantity of intrava saled Fluid in a continued Stream, the Lofs of which made the latients faint and die; Unciently they used to take 11 to 15 Days to let out all the Water of a Dropey, but the Moderns considering better the Nature of the Circumstances, contrived all and age to prefs equally in all Direct -tions, thereby equeezing the lax topsels and applying them to the dereveased Quantity of Huids; as a farther Proof that this is the Case we need only consider what great and long Faintness frequently attends only the letting out a lint of matter from an above to, which did not circulate & therefore this Effect must proceed from that Simulus being taken away which was given by the putrid Matter to the refsels: of a Person fast long he vies thro Inanition and that under certainfor reumstances; for Death here does not proceed only from a Diminut! of the Fluids; but is in a great Measure owing to their not being sufficiently deluted by a constant Supply to perform the Offices oflige, the aced or neutral dalts not being taken in in due Quantity, the Huis constantly lend to Faculencies & Futrefaction, so that if the Persons be of shong Constitutions they die of an universal Morti--fication, sperfeely delinious and maniacal; this is confirmed by alb decounts and by an Observation of Julkius: The sign of an approaching Death from a Deficiency of the Suis

are a soft Pulse, as the Urteries are not distended and the Unimal in a State of Lacity; it will be small from allant of Fluids to dilate the lef. velo; Slow, because the arteries being weath are long in contracting; the Pulse is weak, because the Blood is thrown along but with little Torce; it intermite, because the topicals loving their Power for a little while, will warm to be quite lost, and then becover it again, requiring alonger time to adapt themselves at Intervals, and this is done more and more frequently till the Animal winher from the Continuum being cut of; there will be lown for of the Body for want of attimulus de tie tion from the animal Hira, which is soon lost upon their lubetrac. stien, attended with Paleneps, from the serous Huis only getting into the exterior topicle by their Mouth collapsing; 2 tichols ble a Dog and carefully observed these Symptoms arising in their Order till at last he brithe cole, the Slines became too little to fill the Muscles, he then tother is, swoon's; the lower of the Noives being destroy's the Huiss can indiscriminately, the larger toweles having the greatest Share, they overcame the rest, he felt into little Convulsions and dies: The votend in meriate lauve of Forth will be, when the Stucks grow so thick that they cant be propell's thro the fines tifuels. Un Instance of the may happen from burning Tevers, vines we see that alteat left

wo thick that they can't be propelled the's the fines tipels. An Instance of this may happen from burning Jevers, vines we see that act to let than that of boiling Mater makes the Soum concrete; Great Enougations of the serons part may removes the rest unfit for circulating which will obstruct the tofests and grow grumous: Profuse Colliguations which will obstruct the the first and grow grumous: Profuse Colliguations when the Direct to great the of it produce this Great the fifth of what the decount of the great the of it produces this Great. Path first who will be deshoying their letion occasion Lungs in attenuating the Blood, will by deshoying their letion occasion it to grow thicker and thicker till the Animal dies peripheumonich;

If the Liver be obstructed indurated or schinous so as to hinder the Blood from passing the it, the Caliac Splenick and mesenterick hims will be overloaded, the till of the Stomach and Intestines will be dis -tended and so wlarge Evacuation by Stool which at last will render y Blood too thick to perform the vital Tunctions; The Blood too may coagulate in the feins, milk injected will occasion it vometimes, very cold Water, and I have seen warm Water injected into the Keins throwy animal into Convulsions; Lipothymico being frequent and long will give the fibrous parts of the Blood times to altract one another with then becoming grumous put an entire Stop to the firculation; In grief all the vital actions are remitted as appears by the Julse; Digestion grows langued with a general Inactivity, so that the Bld will not be duly attenuated; the Body grows weak, for want of fine Fluids to fell the Vesicles of the Muscles, and the teffels being langued collapse, touch one another in larger Surfaces and destroy the Free Down of action; thus the thick visco Fluids not being able to enter the finest tofiels; the Tingers and Countenance grow pale, the Hails lived and crooked till the blood grumifies and buts an End to Life; the Gestwell, this is a dead Symptom at the End of Seven Denoing " Vefeels incapable of returning the Blood to the Heart: The fulle is small and quich from the Heatines of the teficle while yet the Heart exerts its utmost Force, Nature Shiving to heep up the Continuum as much as possible so that in this Stage every thing see me to be done in a hurry, but the Blood not returning quick enough thetalse intermite: The Blood in this State not being able to page through the fine Sincils of the Liver, the teins which comey it thisther are were changed, the Secretion of the Somach and Intertines is encreased, to

occasion frequent liquid Spools: Spiritur suppression, from the thich nefe of the Blood rendering it incapable of property through the Lungs, where from the Rouggli it meets with, the Heat is great, this piras tion is acute; because the Unima exerts all her hower by the action of the neighbouring Muscles endeavouring to take in an encicaso Quantity of air which may the more forweafully prefer upon the Bito and attenuativitie lot Sweaks, the Blood grumifying in the fine Vipula, Low not puch out the Muleria perspirabiles, and an univer vals Lavely possesping the topictor, the Cuticular Secretion withrun of in a constant Procelation, coto, for want of due Motion; the Studs will be recreted in the Eyes with in much I freulty, that they will have the vame Une as inch as from Hashes of thre: The third lause is where the lefteds are so strangulated as not to admit the Fluids to pass through them; this may be occadions by a Sphacelus either from too great a Motion of the Huiss or from a Mag. nation of them; for by too great a Stimulus the topsets may be so conwhing as to stop the Coculation of the Huids through them; and this is the common (ase of a lawshe) for so far as that has eaten when you cut into it no Blood comes having so much stimulated that of wels as to shut out the Ruids; The matter of an eruptive Lever, or any hind of Infection acts in their Manner, it shall a long time be logo on the Surface of the Body, but if there be once a thetroceficon of it, it is sen to one but the Patient dies; for by stagnating in the Then it acquires a greater Degree of acrimony and by that means becomes more active and mischievous : So the Blood not being from

perly depurated by the Secretions, the Salts retained grow more and more acrimonious, neither does it signify for this Purpose that there is the would Quantity of Fluid carried of by every Organ, for the Salts must be evacuated or cle the leficle will be inflamed and strangulated; The School veneratus from pogronous Unimals hills in the Manner for the topich inflaming first by the Stimulus of the Loyson a mortification endues which rund throughout all the Parks: The Riching a Tenden has the like Heet, as it Juice is most aft to degenerate, for the Sendon inflaming, that is stagnated, grows quickly acrimonious and commun inicated the Mortification by Steams before any of the other parts are affected, and that without any Extravavation; it seems as if the malignant Disposition of this Fluid stagnating, were encreased by the Compion of the dir; for Dancers & Sumpers break the Tendo adult les often, which is seloom attended by any bad Consequence; but the pt being put into a proper Position, they voon recover the Use of it; and if a large Wound is made the Matter discharges, and the symptoms velom arise to any great Height: If a Herve is pricks there is gr Pain from the irritating Salls of the Fluid, but in lave of a large lune ture the Sain is less; wherever there is a foungent him the beforely are more or left strangulated: The Signs of this Disposition are an inordinate Deprepure of the Mond, where the Spirits sink without a manifest, or before any Evacuation is made, when you shall ver a Sullennete, Sorrow and Despair supervene; athan the natur rally mile, if he berashed a Question will answer you hastily, as if he was musing attentively upon something and did not lane to be interrupted

interrupted, when he returns again to thewarmer Posture; this Sympo som was esteemed very Dangerous by Hippocrates & is indeed much more so than Loquacitas, which is another lymptom arising from this Disposition of the Tibres, where the terson will frequent ely bertalking the inconsistently: Convulsions, which are of two Kinds the one from a Simulus, the other a ti Sanguinis; the former happens when Hature is endeavouring to throw of the Stimulating matter as in Chilbren at the Beginning of the Small Be which is a very goodymptom; but at the latter and of this Difease or any other they proceed a to Songuines; the Blood no longer govern'd by the proper Strictures runs indiv reciminately into alle parks; but Consulsions à Stimulo may hop. for in Different and be fatal: another Symptom is where the Logs and Cloms are thrown out from one another, that the great putied mortifying heat may be altaind Constant Hatching, ariving from an universal Stimulus; this is a very Eastying tom, where Vensibility is so greatly encrease; the Animain how very busy, very watch ful & see mo by giving so great alem wion to the Organs to make them as so many quards to prevent any thing from interrupting her: Willus Towns, is very remarkable in Mortifications, which sometimes goes of & mahas Hoper revive; this veems to be a particular Operation of the Anima, so altering the Tibres of the Muscles asto makethem indicates a Milanefo, Horner and Despair, justiles a Thirt when pursued: If the former begin to be oppressed then comes on a lotenofe desenvation is last; the Colour of the Shin in mortifications

Mortifications is various, for some will be attended with no Discoclowaston at ale, but a fort of the fines which being cut into no billow
follows or a very little; which is the laye in all; at last it seeings the
Brain the tatient grows drowy his tiles irregular; sometimes
to be felt in one Um and not in the other, and is alternably; is not
this surpriging? it manifestly shows the talse cannot be explained
by a Concal Figure of the Osteries, but must depend on their nath
tonich, Tenvion, which is one while set up, another home remitted,

at last the Patient falls into a Syneope and dies;

O fourth lause is when the refsels are so compressed as to hunder the necessary Transition of the Blood; the Caufes of which are a Dropsy in the Breast on aboomen; by the former the Lungs may beso compressed as not to be able to propude the Blood, from which it will be hinder & from returning into the left auricle and conseq "19 the animal must die; a Dropsy in the aboomen will likewise or cavion such a Prefoure upon the Diaphragm, which will equally effect the Lunger and stop the Course of the Blood, hence well happen aleripneumonia, when in Order to facilitate Respiration as much as populle, the anima sets the Scalenus and Pectoral Musclesal North, is that the Head is dr awn up, is Scapula set erect as he grows Dangerous that the others may act with the greater dovantage to give the Deaphraym greater Room to play, but when the Patient grows too weak he lies upon his Back as most convenient whe aneuryom in the Thorax will like wise so prefe whon the Lunge as to stop the (reulation; there are all attended with a small quick luke, as the Blood is so much interrupted in its (would sion; the Dilata-

stion will be umall, the quick, that as much tolood as populle may be driven through the Lungs: Respiration will be small and frea quent, because the Blood paper with Difficulty throthe Lungs in nature makes the Muscles act the quicker to force it through & prevent its Sopping : Fredness and welling of the Face from the descending topels being fre fed upon so that a greater Quantity of Blood will be determine to the Head, distinc it topels and make the Theored . These will be loud and short Sleeps, the Krain being) profes upon makes him drowey, but the Creulation being inregular his Sleep cannot continue long, he is partly sufficially which oc reasion his the spiration to be noisy, when growing more to he The fifth and last face of Death is, when the Communication of the Nerved is cut of; there are the Instruments which the Unima makes the of in a direct Manner for the Government of the Unin. Geowony; for something there must be to govern the vital too = tions; that attends to them, and alters them pro re nata; How This attention so needs vary being omitted or suspended the vilal Motions will be lost this this is the only way we can account for the Hech of sudden log or frief; for as the Unimaris here too intent, too much taken up with the unex beeted thews, neglecting vital motions and the Bown dies; this is plain too in Mostife cations which beginning from an internal lawer at the greated, there is no treason why it should spread up the whole Leg, we might rather expect the lound part should force of the decays; but it ap bears as if the Unima was terrified and despaired of giving any Relief, so retires and leaves it to take its fourse; but as soon as

she is rough by strong fordials she exerts her Bover; this is the Effect which the Bark has, the the Germans use Oil of Comamon and we often ve that alfage of generous thine will stop its hogrefy; So in malignant Towers we shall offen on the Poliente die withe out any vivible Sign of Death, & vound thine will suddenly puton the mortified Look; the Misson whatever it is deter the anna from doing what is requisite; and it will be of great the in the Course of your Practice carefully to distinguish between the actioner Umiles and Omifice; when they are mitted the lave must be give son up for lost: an Inflammation in the Seves Unima will dewhoy her Bower of acting: If the Brain be any way compressed upon as by a Dropsy, it will cut of the Communication of the Yarves, the same will happen from an Coama : So all kinds of Effusion of Blood as apoplexies, will be attended with the vame (onvequence), those who are hang & though the Carolins are prefet upon, yet the Blood may go by the tertebrals, and not being able to return by y Jugulars, the tipels burst and they die Apoplectich: The Sign are, aliedenes from an Interruption of the Communication of lonwaterns: Jacitus nitas, when a ferson shall fix his Eyes and Uther. stion, butify pohe to will return no answer; Hatchings in Fevers from a rapid (inculation: Rednet, Brightness and quick Moticon of the Eyes from the Prefoure of the Optic arteries overdistered with Blood : Vox Clangova, which by Hippocrates was reckond ex reme bad; not that which proceed from Quincies where the Organs of Sention is changed with Fluids, and their natural that as to Sention is changed so that the ferson carity peats but years

great Difficulty or without giving an unusual Modulation to the Sound: but thever parts in this lave are affected without any vivis All (hange in their Disposition and yet those who were never) able to sound a tunable Note; shall now ving very well; I aw an Instance of it in a young Lady, who after recovering could ving no better than before); it is common to hear such from a certain Retivity unexpectedly vet out a singing very funably. Singling in the law with be from a partial Brefoure tomiting with Deaf refs, where the Dura Mater being prefet upon the Unima veh up atomiting to remove it dif it proceeds from a Simulus vomiting must still be the most offectual Hay to relieve it: Leafnest happens from the Preference of the auditory Herve by the astery being distended : Tottering of the Limbs from their Hooknop and the Muscles being anequally filld: a Profound Sleep which encreases with the Propour of the Herves found. wions at Sanguines which have been explained before: The lower of the turner being destroy of there is sonsoquently a Deprivation of Serve and Privation of Motion: Utaleness of Colour from the Force of the Heart and Arteries being lost so as no longer to drive the blood to the Extremities; hospin ration and Pelow will be weak, selsom, intermittent from the little Exertion of the Musches to dilate the Greast, and weak Impulse of the Unteries, till at last the live will be no longer taken in now the Blood propoled: This Reduce of Death will be extremely weful, vince under wach and such Symptoms you can

easily make your Rognowhich and lehewise will be instructed at the vame time what is the most rational mathed to be fahen for the Preservation of the animal:

## Appendix Lecture 33.

The Knowledge of Physich has been a long time in Obscurry, making through all ages but very slow dovances; at first is men were entirely ignorant of the Use of those things which y Divine Being has distributed in all parts of the Horte to restore and preserve the Health of all animals, they thought it no copias ry in Order to get some Light into their Virtues, that an Occount of such as had proud beneficial in any Disease should be pasted up at proper places in their publich Streets; they soon got so mas my Recipes that they were quite confounded, not knowing which to choose; for what they found relieved one will many others; they then threw all those aside which had any mischierous if feels: The common butchering of animals indued some to take Notice of their internal Structure, and so by Degrees gain'd some little Bea of anatomy; there by their Observations began to we Que their Ractice to some fort of the thod and upon thattle scount were salls the Dogmatick Sect, the it was those Thys!

cians look their hise; but there now a Set of Philosophers & Physicians who allowed Experience only could qualify a Man for Practices, for they argued that the Mature of Diferes was so in = ricate and the Operation of Mericines so obscure, that it was impossible to find them out, and so would allow of no he asoning for their quie; this moder one adher to one Method some to another each appealing to Experience, so that out of one let a = row many all different one from another : alout the time of the quetus lavar Osculapius appeared who not being vatisfied to there Roccedings introduced Theory, derying any Inowledge to be had of the immediate Couler of Dipeases, but divided the whole into two Cafees both which he comprehended under the Terms Strictum and Laxum; where he found a day thin as in common Tovers there was his Strictum; where there was lots; quation Sweak or Diarrhans there was his Lasum; he gains many Followers who got the Hame of the thodish; they were very condiscrable from the Beginning but galen coming and reject ving their Method, writing a great deal against lit they began is decline Colins Aurelianus collected what the other has work but what we have of his is very imperfect upon the Ucount of the Divrepute which Galen occasion them to fall into; about 9 16 Century Rosper Alpinus collected their Dochines, after whom very little Mention is made of them Boglini wrote a free of 4 tax and rigid Tibres and applied it both to Sollow and Thirds, for Severy attended with folliquative weaks he considered under this

tum; and it is certain Disorders have their kive from the Solion, for we can hardly think so long as the Digestive Organs are in a Que State to make good layle and the topols of the Lungs are able to act with a proper Force upon the Blood and light so as to attenus rate and blend them well together, that whilst the tifuels give a Que Impetus to the Blood and each Depuratory Organ is in alg. spacify to secrete and carry off the Faculencies; I vay in this state we can't think the animal can fall into any Disease butfrom Rigidity or Laxity: Boerhaove has taken immense Pains in reads ring over the veveral authors of Physick, and particularly appli-The homself to explain Baglivi; but something more veems yet to be wanted; for he has considered the law and tenses libres as con stitutional only, and that a Beson born under such and such a State will be subject to vertable Dipaves; but it ought to be considered how a tran whale changes in the verer ab Difeases; ic, what alteration shall happen from low to tense and from sense to law in one and the same Difease; as is the lase in an intermittent Fever, for at the approach of the Varoxysm he in lense outwardly as is evident from his talench and clonels, yetvo lax and mert inwardly that his Pelse whale be weak Eslow; in this (ave he is tender and inert; by and by he grows, his take becomes quich and strong, now we find him lense and active; cerlong he falls into a Sweat and his Fever goes off; but whilst this last his Palse is quick, yet soft, so y now he is actived las; from whence it appears absolutely necessary to consider the

Variation of the same animal; another necessary Distinction to be made in between the tenserigid and tense clastic, which is the prosper Difference betweent youth and Old age, throwing in the last at the vame time, the one being tense and active the other tense & stiff: The Caufes of a las State of the Fibres are either accidental or Constitutional: atas juveniles is on Laure where the volis are but weak, because their Quantity of Earth is small, but as those you that encreases and they become more and more rigid to the last, all Experiments confirm this; their Harts are advice sopara ted one from another and boil tender soonest, they are soft to the Youch both as to the Skin and Hilser: The natural Disposition hav an Effect on the Tibres so as to make them lax . The Difference of the two clean chiefly consists in this, and there is the same Difforence in Brons of the vamer lex : Immoderate Venery produces Laxing; this is one of the accidental laufer, for as the Semen is evacuated the Blood is robbd of so much Stimulus tile those Brisons fall into Distembers from Languidness; and it has been observed by the curious that running Coolmen after linery have lost go ing one Mile in 8 in the Same given times The Somper of Brind groutly after the Tibres when considered as attabit, the tassians ofly, Love, Grief and Fear at first are active and produces in stable alterations, but by length of time they degenerate into the abiliand enervate their Owners; in Soy the Sulse is quick and soft, in Tear low and roft, but in Grief fluttering; then who are converwant in the Dispositions of Manhine will readly perceive whon a thing is proposed to one whether it be agreeable to him or not by his

Countenance, and Painters always express the Salvions in the Counsenance: Pleep immoderate renders the Body more lax for a time, in which both Respiration and the Pulse are vofter and slower y Shin also feels soft: Heat and Moisture acting are the most power cerful Relaxants, the fine Steam getting into the Tibres pushes them one from another; besides in warm air there is left to foure from the atmosphere : Large Evacuations of red Blood relax pro-Digiously, for those red Globules are the Cause of natural heat from whence arise a proper Stimulus, but being substracted the Stimulus and Friction decrease; Heat decreases too with the Ve whion of the refrels and thus they become lax, and frow anas arcous; This Hippocrates takes Notice of; here a Doch ine of great lese in Surgery prevento itself; in lave of a div located Humerus in a shong tran, the Fibres are so tome, the Muscles so strong that it often happens to exceed the Sower of Art to reduce it; but if he be largely bled the Fibres will be so relaxed that you may make the the Douchon without any Defficulty, this is not Theory only but is the present Practice with the most eminent Surgeons, they bleed the Patient down as they call it by taking away 40 0050 Ounces and then easily reduce the Bone i als, to keep a natural Tension the Tibres must be fell & with their proper Huids, so wave ahous make them lax, those that are of this Constitution would de lum rqued by faving as would the strong if he were supplied with Coluting Drink, otherwise outragrous: Watery Ulement maker the Tibres lax by deliting the Salts of the Blood and preventing their

Stimulus, the mucous and city absorbs and envelopes them and Somahes them left writating, the Oil lekewine insimuales be tween the Sities and makes them loosely cohere ! Boerhaave has obsorted that the Months and particularly those of Staly are fredigiously subject to huphires from their earing so much of their nice delicate Oil: Opiales are inducate thelaxon by dechoying Sensibility which makes the Defference betwiet their Heet and What of Oil, for that takes of the Tension only; and Opiales naking the Tibow inventible, Townson gow off of Course, so under Them the Palse is larger and slower, adder to Durchete, they make their Heet the more certain, Diluente being first given in laws aing alculous matter he was poeted in the Tabuli holliniani or a small Some in Shellaters, for Opealer come in then very wasone ebly to take off acute Servation and relax the Sibres which must consequently give it an easier Saprage: Hest or Hant of Carreise under a Diet not putrevent disposes the Body to grow fat by the Lawilas Reception being enericad as vescein all those Unimal we fatten. The Tehen of a particular part will sometimes grow lax when others are not so as happens in sprains, where follows great Distention, the live of the Hart is again restord by the fishe.

Show things being considered we are sufficient with the Theory of Severs such as are acute and inflam matory when we see all the Severs such as are acute and inflam matory when we see all the sell a sing the hods are much use of to remove the Tory Thinghigh still a sing the hods are much seen for the State of the Songwish no Sock; her the first thing we do is to take the social for the Social Secretary anger which has been for tall town under

under how low metanes, then we order thest and Queet; the former Bractice was put the Boreast of a Tree in a Sub of their in the to strenk thoom; we bleed to however necessing as the these will admit of it; we carry off the Faces from the Intestines by gentle denient Prages which by their theore would stringlate and encrease the Invision; we enjoin very farefully a thin Dut, we have come in the Arguera muchas before and sometimes than coins in the Arguera muchas before in all sangerous Symptoms to throw them, in, particularly in the small this, that he might take of the wishing as much as he could, and they vay he can't be timeted but must be given hely on have obtained your End:

The Signs of alax Disposition are soft hair, curling little or none upon this decount apollo and Homen are painted with long have, but Stain grows stronger with the other Tibres: Such too are flan seid to the Touch, they have their Shin moist and white, as thered Blood is not driven with Impotus sufficient to fill those tofsels, their Surface is smooth from having a pretty deal of Sat by which the Interstices are fill up so as to make an equal Outline; their is soft as a plain natural (governee): The White of the Eye is perfeetly so; and in Proportion to the Degree of Insensibility vois 4 Rebil torder, this is visible in Choroties where the Ophic Merve is not so senseble as in those of tense Fibres; the Gutta Serena is another front of it, for there densibility is quite lost and the tipse extremely expanded: this was a great Secret with Boerhaave, who always examine his Patiente in the same from and Light, at the same time looking into their thouther, because he said he could

better wee the Appearance of the Blood there; but the Truth which he conceald was that as the Papil was more orlest contracted so hejuly of the Sensibility of his Patient; Those who are of this Constitution are not able to exercise so much nor so long as others; the necessary Consequence being an easy Distention of the topels, the Secretions not copious the Blood is accumulated and becomes a Load; Mature then sets up a Tension on some particular part, and if males they bleed at the Hove; Lungs, or Hamorrhoids; but Temales have the la -tamenia at artain Times according to the Esigency of the Courtito stion, and cometimes they fall into anavareas; another Effect in Tacunditar which is constantly the lase if the Lacitar be in a due Degree; for Homen of low lense and rigid Tobres are as much sub. - jeet to abortion as those of too las hence likewise is the tartes for sciles, because the Ligaments connecting the Os Files are las with great: I vaid they weren ubject to fall into Unavarear and if the Or gans of languification with the rest are so las that they are not able to exalt the Blood what can we else expect: when the Quantity of sed Blood in great and yet thin outimulating they are always subject to Hamorrhages : upon this it was that Hit porales grounded his aphorism, that Consumptions never Jeigo a Person after howard 35; the Meason is because in those hot Countries the Blood of young Servons especially, is thin and hat, their Sibres arelas and a Degree of Merimony makes them burst in the dange which turn to lovers end in Consumptions; but after that Ago the Fibres grow too rged and the tolood more compact; with we this appoiss in not have who are subject to many know of Consumptions: The Excher

farther are, the aliment is not duly broken, the Chyle is not properly canquified for Hant of sufficient Friture, and upon the same decount the Depuration is imperfect, as the Fluid are too visces and not die wen with a necessary Impotus, upon this they acquires an aquority & Tenacity because the Deficiency of Diges sion makes those parts which would have been the most nutritions in others, stay behind in the Intertines, so that the more watery only is carried into the Constitution from hence we see arise the descent and alcalescent, according as the aliment is that is taken in and according as it w Digested, for in some there is little Difference between Cyle and Blood, and D Lower observed in a lave where much red Blood had been lost, that vome Broth taken come out from a tein with very little altero shion: The Solin in this lave are too weak as is every toher perceived but particularly in the Bones, for the Vistila being weak the Earth will not be separated from its acid, but will remain with it in form oflatt; hence (hildren become richetty, their Livers and abcomen is large, and their mexenterich Glande arentuffs with attacter betwist cretaceous and mucous; their Sutures are wide and the Ends of their Bones are large; Practitioners are sensible these things are owing to Laxing from their ordering Steel, Mhubart, (To Bath, a heavy atmos spheroand whatever may contribute to strengthen the Solin, and make the Shirt deposite their Earth; such likewise have a tenaceous mat der logg in their Intestines which become a proper thous for the Ova of Horms, and in order to relieve such as have them, they order either Mercurials to poison; Filings of In or Sheet to stat them or proper Simulante and hurges to carry their of ; but some have denied that

ouch Matter is ever formed in the Intestines, but the Stools of many sufficiently prove it; and I have myself sen the Sools of those under a Salvation, examin's them and found that though they were covered over with a bilions lave, yet out into they appeared like no. thing more than boils paste; at the Beginning they gen't have a little griping but afterwards are costine; for the action of the Jakes. tines is remitted and Nature is busy about nothing but to carry " Moreury out of the Body; their formon Tood is Water Greek which they soon nauseato because it turns sown, then Broths please em asthey correct the Sournes but in a short to me they looth that because il becomes alcalescent; to that in this Inortion of the Intestines, being lax the watery pape through the Lacteals and have only the grofs be hind which bake there as it were in the form of viver ten acrous matter: From this laxity too the Blood with be weathly propoled, whence Obstructions, schimows and scrophulous Swellings, and from Depravations in the Juices, and wering to this or that decretion being decays, wite proceed suitable Disorders; if the Secretion of the Liver be obstructed, there will follow the Morbus Appochondriacus; Houch are wounded or have lever you have houblesome trunger in which lase you must use restrictive Medicines and Bandage, those are palish Jungufas and different from any Sort which have their hise from a Mimulus and Tension as in the venereal and an scerous lafes where nothing with vooner takethem down than lax Remedies; if you cut them of they are woon rendered: a Contrary Disposition of Thes is the sence : The first of this in the natural Disposition both as to the Difference ofles and in

the vame les; such too become more tense and rigid with the: The tonse he from will produce a proportion abbettenen, as Onger, Enry and Hatra; hiding and als contribute to this State at do fain and Frieden wherever with a ted on applied; the Encrewed weight of the Um of here has the vame offert: All aliments which have a Degree of the mulus whether salt, putrid or austero:

The Effects are astrong tense and hard Pulse, to outroard appear = cance they are hard dry and rigid, the Materia perspirabilis being thrown out at some Distance with Force, their Colour is dark and Towky from the Blood being driven with great Impetus into the exterior Orderies: the Surface of their Rody is unequaliand rough as there will be but little Fat accumulated in the topicles of the Membrana adiposarios the Interstices will not be fill ) up between the Muscles which swell & show their Inequalities upon every Motion: they will be hot from a muhab Triture between the Fluids and Solies; their Hair will be strong and curted; the White of the Eye will be yellowish from the Flueds being exalles; the Pupil will be small from a great Sens ibility : From a just Opimilation of the aliment there will be Strength of Body Stigow of thins; but if Chylification and Songuification be too strong, and Depuration is not perfect, there will be an Exaltation into an alialine State from whome will proceed Seurny, Weens, malignant & the deep, and if the Salle continue to be retained maineful follows seems to be the State of Tensity and Sensibility to the highest Degree, such is that of the Rabies Connus, and the Dread of Liquors which such ferrons have and Dogo likewise, even of for water may be from the great Parn and Uneavines it gives them in its topage to the Stomach

Stomach from those Parts being rendered extremely sensible by Jem sion and Inflammation; and the vame Sensation is fell by those in Dreams who not being accustomed to eat Suppers happen on come Evening of Entertainment to feed largely, when week and no flammation and Delirium shall berais in the Brain and Organs of Degertion as to occasion Pain similar to that of wallowing in those who are lit by mad Dogs: People of this Disposition bill be subject to malignant and purple Fevers from a broken and mortifired State of their Flurds; in these Capes Sydenham use acies as her did in bloody Unine in the small for or wherever therewas a Tenedency to the refaction: algoe felt under D'Micholo Observation of a Lady that was very languid and weak in Constitution, upon which he ordered her volatile Salls to be continued for some time, after a fretty liberal live of them on a sudden a Stamor hage hoho out at her hove, whe spit Blood too, which terribly alarmed her; he for theith orders her the strongest mineral deed and the Symptoms were son corrected; if the Fluids do not abound with Salts, the war tery Park only will run of by thrine and the rest will groweasthy and the vollow tenve; If an Inflammation fixed in any part una der these ( generalances it will not revolve but the volice and stage enating Thirds will be concected into Ree, if they become more care . they therework be an arthritis, that is, the lifete ofligamente as sout the Soint will be obstructed with it: Sam far from thinks ring this to be a malignant Matter, but by its Obstruction produces Heat and Pain in these sensible parts; for it is not ex havasates but intravarates or how should it be translates from one place to ano

there? or how should the Symptoms go off without that being discharge. but falling upon these parts where the his lite is weakest it continued till the thinner and more watery parts get clear of the rest, and then if Distention and Pain go off, the rest remaining occasions a new Fit and so a new decumulation and so a new Fit, at last it becomes so much that it produces abseques and turns out in the Sorm of Chalk, these abscelves heal up again without any Difficulty; but Surgeons very well know that all other absection which fix whon y Sounds arevery difficult to cure, consequently if this gouly matter were malignant, these would be so too: If by a wongt netastasis y matter is thrown upon the Lungs, the obtarated Fibres of the Soint are peed and the Swelling goes of; Un of Gentleman under my face upwards of bo spring and Leaf fall was attacked with a Perip new mony o lough attended with a Shivering, Sich nefs of his Stomach and Lovenes this continued commonly 3 weeks, at last a Swell forms on his Tow and the other Symptoms went off; but in the Mean time a Suppuration was made in his Lungs, but the When eavily heated up after the Matterwas determine to the Joe; vo 4 here is another Groof that this Matter is not malignant nor as serimonious for then the Ulcer would have been incurable; and think we may very well be vatisfied that when it hills it does it by its opprefixe Quantity and not malignancy. The Blood leaded with the earthy Matter throws of some by Urine, which stops ping in the Pori Belliniani or falling into the Selvis concrete and form the Stone; In other parts of the Body in the finer Fibres it produces Callufer: Temales arelax upon two decounts, that the lites

orw may be duly whe teld without abortion and that the Three by which the Clacen to acheres may admit of Distention: The Cause of either of these two Stated in the fure of the other from where or ise the Doctrine of Alealescent and alecevent; which has been of more service than all the Systems of the accepte, which but we take fare always to distinguish the Constitutional and that wought on brong nata, which will discover to us the trethod that wought on brong nata, which will discover to us the trethod that Notice takes to relieve hereely

## Lecture 34th

of acescent & alcalescent Blood &

It will be proper here you whould recollect what I vail at the liver genning of these Sections whom the different know of Animal Salis. As the Aliment consists of aces cent or aliale seems Substance; if misd which seems preparates, of that stature does the Chylospan stated continues the vame to the Intersines; The Son for the mast stated continues the vame to the Intersines; The Son for the mast part feed on accessent aliment, the Bilo and for never the Suice part feed on accessent aliment, the Bilo and Suice makes it neutral partaking of the Nature of the Unimal Suice makes it neutral partaking of the Nature of the Blood becomes ammoniacab and alcales which taken up into the Blood becomes ammoniacab and alcales common heart of the Atimor thore and alcales to set of the Atimor there and Atimor the Solids; this ammoniacab Salt in necessary for a Stimulus to set every part in Action, the as conscious Beings we are not vensible how that in Action, the as conscious Beings we are not vensible how that happens, but the Naconvens only for a high version Dish will quick

Treeting in

- ly producer Heat which could not be unless the Unima vere conscious of what had been introduced into the Body, to abourd to think it should arrow from an insensible part, what I mean is it can't arise from y mere Disposition of the Tibres, because when dead, they will have no Heet, for this Tension which Salls and Gromatiches occasion in a living terson might be produced in the dead, where the fructure of the Varlo is to all appearance the same if there was nothing more to occasion their Sensibility; I don't pretend to demonstraterhow this is performed, all I contend for is real Facts: Another live of these Salts in the Body is to attenuate, for the account aliment. would otherwise degenerate into tiscioities; twas upon this deet the hymists introduced volatile Salts into Practice for when the Coculation was discovered, they infered that so long as a proper Tenuity was hept up in the Fluids so long would Life be prevered; voin all malignant Fever they gave their volatile Salks as high Cordiales, but the immediate Consequence was, their Patients felt into an universal Sutrefaction and died; this put them upon considering more of it; they then calls to Mind that the Clayptians preserved dead Bodies by Jums and aromatich Oils; accordingly they added aromatick Oils to their volatile Salts, which was the first Original of the Saltolatile Oleovus; but by this me and they ded more mischief Than before, as these Oils are much more aerimonious than the Salto; they did not consider how they acted as Greservatives which is by a latent deed contained in them, attracting the putrefying far ticks; and their active Stimular is quite inconvistent with the Stevebility and Life of the Unimal. Acids then when farther to be

periments were found to be the proper Unt dates; but in poor Courte · Sustions enclosing to the deid they proved permisions; These Mater so contrary one to another obtained the Names account and alcales ecent: By Owevent I don't mean that the Map of Blood is really some on that it will surn so upon standing, on the contrary it will pulsefy, but a tortion of it separated from it will have theologue of distily, and will furn Sour; part of which will be vocated fromit in the Constitution with all the Characteristick Marks of antierd: Some van part of an Ox as white as teat which smell sourist, and did not arguere that putrion for by keeping which others do; so that this might be call a Chlorotich Ox! The laufer of this unexalled thate of the Blood are first, land Fr bes, which is either constitutional or proceeds from Debility by some Defeaver, or is an Effect of the Mind too much employed; when Debilly from a long Mine to is the laveryou will find whon cating Bread it will han sour, and the Sieces of the Unimals be sing so poor they will not be able to make it reutral and soit with produce a lazaralgian of the Mind bevery busy Digestion will be very weak, and Hudy upon a full formach is rechord bad for this heason; for certainly Contemplation and deep Thought heeps the anima from attending properly to the Uniz mal actions, so that such will heap up fruities and very much weaten the Strength of thew Constitutions : Aceseport aliment winder a weak Stomach will chiefly exert its Effects in the Silectines, such is the love in Children whove Food is generally mother's Milh, Panada or athificial Milh as it

called made of Barley Water & now Mother's Wilh is more alcalescent than that of alow or other animals, yet it becomes Sour in their weath Viscerte and gives them griping Stools; this will sooner happen from Panada or any other truth, for which heason (hildren should never be brought up by Hand, if it can be avoided: All farinaccous Substances hums sour and has another bad Effect of producing historities which occavion bad Symptoms very bad Symptoms often; all fermentaceous things do the vame if some thing be not added to hum them from need: and Medicines especially those of the mineral Kingdom which are scarcely alterable by the Torce of 4 Constitution: Correpleter with aid volatile Berticles which will transude through the tofocle : and that the air is replete with this universal a eced, is plain I think from the Preservation of those animals who feed on ely on others, as Holies, whose Food is farron only & Drink Hater is cantehange the Qualities of the Diet; I vay were it not for this die get ting into the Blood, I don't see how it should be populle they of leve to sout stinking and putrefying, for they have no Instrument capable of turning the Balance, except that their Emunctories are better adapted for Depuration; when there aid Juices are carried into the Constitution, the Sibres weak as they are do somewhat exalt them and make them new trabin parts

The Consequences are these diese; for all owe diment contains a certain Quantity of objection of the Union the Defectation of the Uliment, is separated, get logother, and recovers its former Clarkizeity at last party, for love is really deprived of its Clarkieit, and attraction by Badies; this being the Courthe deis Chylentimulates the inter-

times and makes them contract, so that the divhas not diberty to pass but rarefying there distends the Interines, upon which they are reno Derio painful; but hain stimulates only to a certain Degree, but offer that still increasing it brings a Laxity on the fact, and then the die is vet at Liberty whon which the Symptoms go of; this is evident be cause when it becomes intolerable Rople fall into Deliquia as it were a Consulto; this is a new Proof that the Unional is not entirely popure; as here is a Shicture and Pain, which becoming too violenty Skichere is remitted; There are two hinds of avoid gia one is from Clearly, from caring an Out Cake, or some wich thing, which is earle by absorbent Bowders, the other happens by caling anything high season &, where Hater to delute is the only specifick, acis having no Effect upon an aromatich Stimulus: Stungerois another Symp tam, which is a constant Uncavines relieved by cating : The anciento upon this account attributed Digestion to an les monstruum, but the the whong mineral acide cornode, the weater harden animal and togetable Substances as the Pickles are by linegar; now hard Dunkers who indurate the till of their Somach's have a left Secretion from thence and general Laxity, such are subject to Rausea's lowing their appetite; here died as the Elixin of third is of borvice, not acting as a Solvent, but as correcting a Richafaction arising from the savory things they most commonly feed on and by aromatichs strongthing the last Tiones: The Faces are green from the leed mixing with the bile from hence are colicty fains Haluses and Sparms this is most amarhable in Chiloren, which Sometimes are discharged yellow, but having stood a quarter of an hour become green; There will omele Sour; absorbent here are of

Use, but sometimes we are obliged to go farther and throw in a volatile Weali as of of Hartshorn which is accounted a Specifich in Convulsion sons, which are generally attended with green sour Rooks: The Phyles entering the Constitution in this State you can't expect an exalled Blood, but its Colour and appearance will be answerable to the Chyle; so the Body will be pale, and the Blood will have a Lentow in it, as every Recep from a volatile States will leave it thicker in Murfes of this Constitution we whall see their Milk turn sour immediately up constanding: The Belo in the Gall Bladder will likewise be green, not by any Reidities getting to it from the Nomach and Intestines, but from being secreted with it : Some Observators have endeavoured to prove the Saliva is aid in such Constitutions by its setting the Teeth on loge, but I believe that to be false; acid Jumes may wise from the Romach and be mix'd with it and produces that Effect; but perhaps the Salwa is a Fluid the nearest to alcaline of any in the animal more wo than the Urine Sam confident of it The Enamel of the Seeth will be cat away and very often a sharp Humow will verge 4 Personteum of the Jochet and make the Teeth loose and black; by prefung upon them you will ver a thin ichorous Mattercome out, the besthe medy in this lase is to rub the Teeth with Martic dried which absorbs and corrects this Matter: Rurities in late of aparticular hind, the cal ing uniper Fruit makes Rother break out In Scotland, Bak of Der by Shire and other Countries where the chief Tood is whom Rye, Oate, W other farinaceous Substances, they have a constant Steh, not that the Matter which comes out is acid the produced by them, for vegen stable Milor of all others are most commutable; but if the Matterbe forces in it produces all the Symptoms of Alcalescency; these likes, wine

wive have there in their Legs on the depending parts which look flabby and white I bis much more casy to correct the theorem that han if allhalescent, because here the long to their is working for you in excepting oven the very deire to make them neutral; but it is quite contrary in the Alealescent tokare are only the Depuratory Organs to

afrist you:

The laufes of the alexeent State by which I mean only when the Thurs are got to such a birt that they incline to be so are first, the Thorastice the being constant, by their giving a quich strong Motion to the Study, for if they are tense and Someible, great Motion will follow: another cause is too great Exercise, as is seen by tenison hunted which quickly pur trofied and cats tonder, whereas that which is shot requires to be hung up come time; ovelow it's lough: have Horfer after running have had their blood perfectly putrefied; Itveems as if hunting of animals were contrived to be preparatory to Digestion, for animals of they not using Exercise after feeding could but very ill digest their Good if it were not predictioned to putrofy, so that it seems to be the Disign of the Governour of the Universe; a Cats hall hunt a Mouse after she has first catche if for half an hour, for no other treason that I can think of but as proparatory to Digestion: Sub Debilitate, if the aliment be alcalescent and Solion weak, the Blood will not be propetto as it ought to the Emunetorees, from wheneville arise an Accomulation of what should be defur rated: Hople affer Fovers commonly desire a free of Fish, as Whiting or adole, imagining it to be very easy of Digestion and quite inoffens vive, and if they be strong enough to digest it, it may be allowed, but if otherwise nothing proves words, because it quickly putrefier and throws em into violent Disorders; a Lady under D'Hichols's Care, by vo doing

died in 24 hours, fail is the wood alealine any theren can Inho under, such legeundances: Soo hot Ow how a Lendency to allaline only and or soon so were see by the chance Exteriment on the Dag; and putrid Distempers rage most at the structure of the Progres, malignant Lovery, Small for be and the moves of it abound with the Sood and Eggs of the maleales, for ome have not serupted to deduce the Progress from thence; upon this alecount too Cagness are dangerous and they too coursed with then

The Effects of this Disposition are more fatal in the Constitution than in the Brima fier contrary to the descent: The first we Ruches nidoros, as coming from a putrofacted Substance which is attended with a proportional heat and thirst look upon Thirst to be a nat Indication and ought almost always to be indulged and those who have it commonly desire acid diluting Drinks; but in the Dropey we are oblight to deny it as much as populle because it Quantity roould overbalance the other Benefit, and therefore we give them and Substances as a Slice of Lemon or Samarinos : Universal Languer is consequent upon tutrefaction, as in putrid malignant Disorders, Rople faint and the Strength fails at once; this is an Instance of the Vires Omipo and not any mechanical alteration introduced, but the Measm whatever it is well hill frequently without any foregoing Symptoms: This has occasioned that Reproach to be thrown whom the Chysicians; Pulous sames, Urina sana, Homo moritur; but this is not true for the Culse will grow weak, and wanting the Conamen Plate no the Batient dies: In Common Tevers, aled take place, but iny Plaque and such Disorders it seems necessary to heep up the Rongth bythe highest Cordials; Appetitus prostratus; this needs no Explicas stion but hore is something of Consequence, that what is taken in does

not act by its own Qualities but according as the Person thinks of it; for if a tran by taking Colomel and Conserve of Holes whould prove with and vomit, he would always nauveate the Converve when offerd him the hohnew there was not alomabin it; this is something like the Us. resociation of Idors; and if we are nauseated once by any thing, we continuerso, without being able to give any hierson why; it wooms to be a Misapprehension: Ayellow Colour in the Body is anothers Heet, proceeding from the Serum being overloaded with bilious Porticles; Bitterness in the Wouth from the Saliva abounding with them; Hausen from the Juices of the Somach being too much stock & to them: Urina felies and felix Jaus from the Utundance of these Salle, which in such a Constitution ought to be each on a good light Denter squamose which attend the hot leavy, the trucus long ing upon the Seeth make a Bed for Enerctions; I shouts have mention to that such are subject to Colichy Sparms; As the alea-Leveney energes whether Heat comeson, which growing more & moregener in an Universal Sphaceline when the talient dies. It would seem as if the luxuriant Custom and Manner of living. had rendered bleeding artificially first of all newfray, for by bringing on too great a Renitude and using little Exercise they have made this the most general the may. The of Deflusions are commonly ? Consequence of this Planta do, which bleeding relieves by taking a way the laure and diminishing the Before of the topiche, and where were the Unimal Stices shop they arguire an derimony; By this to you give them more from to move in and so encroase their Motion and attenuation, the more because you take part of the thick

est, by which Means you likewise promoto the valutary Exerctions; you diminish the Capamentum and take away the Rimulas of the Vefocls, which then become relaxe; and in Inflammatory Tum by plantiful Bleeding they quickly vanish as Galen has obsered; you lepen heat too and prevent Butrefaction; So here you see it is indua red in a Pethora and in too langued a Motion of the Blood where you have the Bulous supprefores, but his a nice fort to distinguish this from the other Pulpes suppreferes; the way to do it I think is this, in the lave where Bleeding is indicated, the Ortery with notevacuate all the Blood at every Systole and consequently con receive but little, now by laying your Finger carefully upon it you will perceive it contin nues round in its Sy tole, so as soon as you have bled it will be = igin to expand the off; you likewise see Blooming is proper in too great a Tension, but here requires a very great Caution, for a small Quantity of blood may be extremely acred in Consequences of which there will be a great Tension even to that Dogree as to perfectly man iniacab: D'hicholo had alove of this kind where the Gentlemans Sonfes were extremely acute from the great Sension and his tilse feltumale & lenve like this cord, instead of Bleeding him he gave him large Dofes of Opium and in a Fortnights time her returned to his Bufinefij it is proper under too great Heat of the Body the Reason of which you have already veen :

Bleding is contraindicated by Inanition; and Heatingly, when there from Difease; from Di Age, or from Fat; In Oto Age the Solids are then we and regio, but or they varguify but whowly you must bled in Small Quantity; Estivar Difease from Laxity and such Geople how

butlittle Blood now but small Blood Sofels; Bleeding increases their Lacity and makes them more disposed to be fat: It is hur this also in too great a Debility and Tonuity of the Blood as in Poloso tiche and some Scorbutiches; Under a salutary hifes as critical Homorrhages Rature is by no Means to be interrupted unless they become very immoderates: It was an od b Observation of Stabl's that large Evacuations of Blood were the laufer of Broke is because Physicians were calle in to whop them; for vays he such is the long sequence because they loose too little to lood; and it often hoppens so from supprefing the Hamonhoids and Mandes loo soon The next thing we are to consider is where to welllath is Opener tion; there is an Do Doctrine receive by mechanical the avoning that in Inflammations as tirip reumonies wowshould make the vulsion by bleeding on the contrary Side, for by Hallbane say they you take of the intonce from thouce and so the Fluids will run in there the more facily and consequently the that affected will be cased of the Burthen; and father, Experience confirms it; for after bleeding three or four times on their a mer lide to no thin pose; do but bleed once on the contrary lide & it shall give immediate helef; But blus convider the arterial System is equally built in all Parte; and under whatsoevers Quantity of Blood the Steart moved all the arteries will have their proportionable Share, wo that by lepening the Quantity of Blood, every part will receive a left Quan. stily proportionable to the others; and as to the argument brought from Experience it froves no more than this, that the Serven want. red to be bled again, and had the Overation been performed on the some Side it would have had the same Effect; to argue in this Manner is what the Logicians call, Tallacia a non laura pro faura: The same is to be said of Derivation where they bleed on the contany Side to derive the Blood from the other parts, this they call Remilsion, but then they open another Vein on the wamer Side beyond the Part affected : So that properly speaking there is no topical Kevulsion, the there may be a topical Evacuation; for in a during where the Blood lifels are over-Loaded and distended about the Tauces and Gula, the Veno, Sublingue ales will be swell b; if you bleed here it has a more immediate Effect because you taker off the Preferer; so likewise in the Hamourhoids which are owing to Spasms on the great returning topsels, the forms lying naked His very casy to open them which voon relieves; there is another thing which I believe has some thinght in it, In too great Elethora's Nature endeavours constantly to throw of the superflu rows Blood by particular Hamorrhages as in the Menses after a stain times; a Supprefuen of them is observed by Brachitioners to be relieved by Bleeding on the Foot rather than on any other part, but there is nothing more in this than inviting Nature to heap the Oto toad, where Revulsion has nothing to do:

He generally choose to let Blood by the Viens, because the word Blood is worst, and the time voon cloveragain, whereasthe Order reces will not of some time; asteristomy then is not to be prefered but where you can't draw Blood from the town as in vome Apoplass ries and Deliquia; in this aser we choose the Templas because it is there most casily stoppe; another Way of rawing Blood is by Leeches, which is done in Chiloren or where a term will not prosent

itvelf, or where some fear the Lancet; these bite the thin and such out the klood both vanaband anterials, this is by no means preferable but done because the other cant so conveniently be used, they are usually applied to the Homorehows but three often happen ill & feels from it, as their Bito does not readily clase but grows callous and layer a Countration for the tulas; there have been Instances of Mortifications from it, but that I think must be owing to a fabrile Habit; and some ingenious Surgeons have lost their Court by a mortification following the Use of the Lancet purely from vuch a Divlomperd State of the Body, when Nature was endeavouring to make alifes, in which laver the always chooses the weakest part; but to Regard to the Hamourhoids I think a fine Lancet much proferable To Lechev: Copping and Carification are employed where a Person is a faid of the Sancet where you likewise draw both venal and an Serial Blood Cupping is us alone upon cold Tumours and Suggish Buboes:

Secture 35 the Of the Operation of Medicines

I toto you my Opinion the Lesture before the last concerning the Gouly Matter, I have here brought a the of petrified Oak to ellust trate what I said; for as the Fibres of the Hord one impacted by the state what I said; for as the Fibres of the Hord one impacted by the concreting petrifying Matter, so are the fine Lymphatiche by the concreting petrifying Matter, and as the one is turned into Some so is the secretaries that or into Cath, these Lymphatichs then being quiter toped when turned into Cath; these Lymphatichs then being quiter toped

up, the Fluid are hindered from paping, whon which they mortely and are thrown off by an Abscept, just as an Escar is by the Interfor mation of matter behoixt that and the sound Fibres; but the you may perceive the Traces of the twoody Fibres, you must not expect to see those of the Lymphatiches, for convider the one is the farmest of vegeta ble Substances, and the other the finest, thinnest and tenderest of anim. Substances, befides there is no Proportion of tofels to halk; now as the Hood is call a petrified Substance, I would call the other a cretified Substance; It is here; when ther Set is going off, which is when there comeson adaxily upon the Fibres, this cretaceous Matterswill han wude thro with the Materia Perspirabilio, and remain upon the part like a white Bowder, but in this lase it never concreted; the Lympha tiche laded with this Matter may likewive burst and lodge the retar recour Matter in the Interstices; but in the Example which Imention red to you of the Old Gentleman where Nature was too weak to form a regular Tit, and so in the Space of 6 Weeks there was several From Ilations of the Matter from ther Foot to the Head and Lungs and back again which was then attended with lethar gich, peripreum onicht other Symptoms which all vanished as often as the Matter return red to the Soot, and in this leve it must be contained in the tefects. I am now come to speak of the action of Medicines, not to explain to you how they act but what their Effects are, for no one can along any heavon why Jalap should purge or Specacuana vomit, allow know is that when taken such will be their Spect Thew Deffer some from Diel conviets in this, whatever is taken into the body in the Gorn of aliment and preverves it in the vamo Order from one Doy

to another, this we call Diet; but horizines are those things which change the Body to Day in some hospocks from what it was yesterday, The Distinctions between them and loguous is commonly frances sprin Substances hilling in small Quantities; but Poyon is anes quivocal Germ and those very things which were look a upon by Anciento as Poysons are our grand herculean hemedics, & the very same thing may be a forein or Medicine in the same Quantity under different (creumstances; and in different Quan fies in the same (grams fances; so common Diet is Medicine) and even Poyson; for if you preveribe an acid Diet to one whose Constitution abound with acids, what do you do more than gra-I dually hill your Patient by a vlow Poyon? the same holds frue in the Alcaline : I have one thing to observe here but I device it may be apprehended with great Caution, that I am surprized Physicians should explode Medicines because they are dangerous, for what is their Shill for but to adapt them to their proper lakes; I don't mean to recommend their Use inadverten fly, but that they should be applied with accurate Judgment to their proper Exegencies, his for want of Bhysicians sufficiently instructing themselves in the real Properties of these Remedies, and the new Circumstances of Difeaves where they are required that they have sunt the Reputa. Honof Physick and giving amperiche an Opperhunity of running away with Predit Every thing we take in the Shape of Medicines affects we accord

to our Senvilley, and has different actions according to the Rough

of the His Vite or rafis of the Blood; and the Governing Kineiple must put them in action or they are lost, his upon this decount perhaps that Dropvical Scople are not moved but by whong Surges; The overmuch Heet of some Medicines upon some People, as a gentle Burge, it per chaps instead of giving two or threen looks as we expected shall give ten or twelves or more does not proceed from Heatiness, but from their great Sensibility, pin such a small Quantity shall even throw them. into a dangerous hage; the there is a real Weakness in some Seon eple that they can't bear one or two Motions; so that their Effect is as they are perceived by the anima and in Proportion to Sonsibis elity; for this he ason many faint away at the Smell of a hove and other things of that hind : teople arising out of a verever can't bear Tood of any Solidity, even the Smell of it makes them nauseate it from the acutones of their Sensibility and not from their Heath : inefo tho' that attendo:

Hive in a sing upon the Clow is the rolar or when then them, and this is either perm anent or temporary, slowly or hashly, as to g' Elwin they cither thicken them or attenuate them in which there is something to be observed; if I give Laurel leater of appears to act upon the Fluids by attenuating them because the Lymphatichs are ting of will red Blood, but it does not seem to hill by the but by wemching being introduct with it which the Unimal can't bear to which operates in a tran nor that we can give no Account of factor things will rarefy more and not have that Effect in the warmer them

lity; another thing to be observed row is, of such Medicines as are thought to produce their Effect by Evacuation, whereas that is only accidental, such are Bernatories; letus consider what Sternutar tion is; demothing being taken in at the Hove stimulates it, and makes it away, upon this at notes determinates is employed, as large Secretion is made to delute and wash away the Offansine Matter, to do which work extraordinary motions are set up The Thorax is row a, the Diaphragon is pulls down, the Ucularis removed from the Toramon Placium, and the live is shoughly fores this the Hove to push on the Shude secreted and drive out the stimulating Substance; here soe ver parts at a great Distance are put in Uction, to remove what becomes broub a some and disagreable; not by any Communication between the Herees of the Hove and those of the Thorax, but the anima knowing his own In trumente makes use of them as such, in the same manner as I by the Deter min ation of the the would employ my Hond invited of my Jost; There is a hind of Her nutatory which ach without oneging towar more We of purely by the Uncients because they imagind there was a Communication between the Move and Brain, and that pitus How Divorders there might berretieved by Discharges at the Howe; but the Arteries to the Hove are chiefly from the External Carolides; these Entines as they called them to carry of Doflians are tale, for though you may make a Discharge youlk not be able to carry of the Matter you intereded, but Stennutatories may be very propor for timulating the topols, and pulmonizing the Blood as it were in the tifiels, & so remove Obstructions in the suferior parts

parts, upon this tecount Inflammations of the liges may be help'd by them, by moving on a grope Inquating to lood; but they must not be accompanied with Pain:

Vomiting is another Mohis determinates problem Finem; the gen Occount which has been given of this action and which was taken from Hiller is, that it proceeds from the Contraction of the Tibres of the Romach; the Moderne have added to this the mutual Comprofer of the Stomach by the abdominab Muscles and Diaphragm, but in Reality the latter only ach as I have plainly seen in a Dog, where the Tibres of the Somach were purely inactive; and here Hature uses again the most proper Instruments in her Powers to effect what is wanted; the first thing that tomiting does is to ovacuate the Contonto of the Nomach, beginning with a Rausen, increasing tile a hind of Sain is felt and then the Berson vomits. This is generally und enotoed as if the Som ach had a particular Sons ation of its own, attributing it to the Herves; but in my Opinion it is thus, as the Muscles of the abdomen and Diaphragm begin to act they prep upon the Somach and delate the (arona, but the' the elliptic Fibres which serve to close it, cavily admit any thing into the Stomach, yet his with Difficulty They are open'd to suffer any thing to return, but by this action they arefored open and the Beginning Une asine fo degenerates into him exactly at the time in which the Contents are thrown through it, so that haused and fam are nothing but the same Sensation contis rauce through different Degrees: all the Contants of the abormen are prefed upon in lomiting, for they may be considered as a fluid, that one part being prefet the whole prefet quang versum; the lortades

scendens is particularly effected, whereby the free Descent of the Blo is hindered; the Lungs and Heart in the Thorax likewise feel the Effect of this Refune, consequently the Blood is fords in a greater Quantity, thro all the superior parts; the Law grows red deswells and some times the topseld will burst in the Brain and the Patient dies apoplechick the Effect of lowering is universal thro all the secretary Organs, Sweating is instantaneous, and continues after it, the Unine flows more plantifully, for all the Fibres being compreferd, there are the ne rechary Effects; We find it therefore indicated in Saundrees unless they proceed from acute Inflammation in the Liver, or astone in The Duck; and even hore it may be oflew if you miligate the Inflammation first by Bleeding and give oily Medicines to relax the Ducks which otherwise would be in Danger of bursting . In all Cituitous Disorders, Somits are very service able, as the topals are kneaded and compressed by their action and every thing done that can mechanically relieve them : In Difeases of the Intertines as Diarrhans which often proceed for Want of Bile; when the Alia ment following its own thatwo stimulated the Intertines too much, by tomiting you cure them as your emove the Obotructions of the Bile . It sometimes happens that a stimulating trather ad. theres to the title, stimulating the Intestines and hunging down the Contents, but vamiling encreases the Secretion, with an Impestur forces it offand cures the Defease: In Dywenteries they produce the vame happy Effect: In the Cafame mia Jupper of they are very beneficial, from the me chanical Reference of the foreting squeezing

out whatever obstructs the Mouth's of the Vefeels; it would seem mou surprizing how they should supprefo them when too profuse, but this they do by the Prefoure of the abdominal Muscles, removing the Obs wheetion from the returning tofeels: In asthmatics they are good, as in that particular hind which I have shown you from the Inspife wation of the Mucus in the Trachea, for after Bleeding and relaxing Vomito are vafely given, which encreasing the Secretion of those Glands separates that matter: When they proceed from visced Obstructions in those Glands, nothing is so effectual to remove them: In a Pothin efir the perhaps it be dangerous and nice, yet they are very use? oful, when there is a foul voidid leeve, for the encreas's Secretion will wash them; and they may be vervice able too to throw off any cir etical Matter, and will free the Lungs from any Viscodises stuffing them up: In Convulsions particular ones I mean, they are good, as in the Epilepfies of young Seople where the Sutures are lock'd too soon; In the Head aches and tomitings of such they are the best things when that set up by Plature is too weak, and in all Disons ders of the Head providing there is not and blothora nor too great Inflammation they are most beneficial, removing all the Obstrue itions and making a free firculation: In the Beginning of Depu: eratory Levers, paying Regard to allothora, according to Sydenham they are of great lese to prevent Diarrhans, for says he the morbed Matter being stabild in the Stomach grows acrimonious and hurwest the latient into a Diarnhaa; which would have been prevented had the Inmera Morbi been taken away, now the the Grachee be good

the Keavoning is bad; for these Tovers come on with all the Symp. toms of an Intermittent, with Tension upon all the Surface and a Determination of the Fluid internally upon the Somach and In Lestines, here then follows an Uncasine fo in those parts like aster schorgein Obstructions from the columning Veine, which growing acommonious by lodging bring on an increased Secretion or Dian = erhea; from the you'll perceive they are at any time good, since the Service they do is to promote a profuse Discharge by which Means you haven the lifes, and not carry off any morbid Matter as hesupposes: It may be ashe why Mature should be hurried here to compleat a hifis more than when she aims to do it by the Shin, or why Terers are not as safely carried of this Hay as by Sweat ring? The Reason is, because in Diarrhans whatever you give ? Patient for his Mourishment will never get into his Constitution, but run of the Intestines, so that hell die this Inanition whilst the life is making; but when it is performing by the skin all the Your shmont with have done it Office before it arrives there, and therefore whatever is discharged, with be what was unfit should be retained : Such is the last in a Solivation where the Serson shall spit a Quart a Day for a Month successively whereas he could not have list so long under the Evamation of a Quart a Day by the Intestines . It is an universal kule to consi-Der if there be a Stellina and to remove it before you vomit, except in the Cophalaa Suranum, for the Intention here being to open the Sutures, you in ust employ all the Force you can limitively speak ring, for if the Methora be very great so as to ensunger a kuphere will

will be proper to take away a little Blood: In spitting Blood you must bevery cautions how you vomit: Inflammations in the Liver forbid their Use, and all others that are great and attended with Carn; anew ryuns which sometimes happen in thefarotide and dodorninally Levies would undoubtedly be ruptured by whaining the tifels in wh lase the Patient would inevitably bleed to Death: I have one thing to as deconcerning the action of the anima which is an Instance of Misapprehension to which Searlicknow is owing, for which never womit till they are girdy so that she mistakes it for a refuse on the Dura Mater, and People are never taken with a tomiting but a Godine for frecedes it as they may observer by attending to it; so the anima taken the same thathor to relieve, as if there were a real hof were; but these Symptoms are entirely taken off by a Fright; if a man be ever vovice at Sea? It bounderly affrighted, it goes of directly:

Cathartiche act by increasing the Secretion and Motion of the Indestines, thereby earnying down and oracu a ting the Contents; they equalize the Creation by feeing the descending by freely from Compression they carry offermer Bile with the putrice Trees, what Spenham vays is very true that Guoges purge because they are immicals, for by winnulating they augment the Dischange in the same than ner as actimulus ach upon the Nose; we may from this explain what the Ancients meant by saying the Disease was crude or concoited; crude when the Nose; were watery, because the Stimulating Matter was not then allo carries away no encounter

- ped; but as the Secretions were continued and encrease, that was either discharged or envelopes in the Juices &therefore could no longer Simulate, so that the one was a kecefo from Health, the other achetura from the Defease to a natural State: There are two Kinds of Cathartiches, Eccopratices and Drastes; Ecoprofice carry offenly the Faces themselves, the immedirate Effect of which is that they take of the Profune from the deexening topicle and by this trans relieve the Head ach; the Lungu too are find by an equable Distribution of the Blood; They carry of the public Fores and by this Means are very servicealle in some Tevers wherethe Valients are the up for ten or twelve Days to gether, by which the Faces acquire a volar "hite Hidor stimulating the Files and enhancing all the Symaplanes, but after they are evacuated every thing puts on a new Sace, the Urine grows better, the Shin moist see Drastic Purges do some thing more and arente pord to get into the Constitution, and we find that Unine will be tingo to Phubart, and for Bren with be purged if Murfes take, and the vame with happen if she takes Eccoprotiches: They encrease the Intestinal Secretions, they thicken the Blood of the Vina Porta by discharging so much Lymph from the tofucts which carry their Blood thither; It is magind that they face the Blo and remove Obstructions, but that does not appear unless they attenuate in agreater Proportion than they abstract aqueous

Parks, they are thought to remove Obstructions perhaps because they are sovered to being down the Catamenia, but they are not down by furing or all nuating the blood, or by any Impelus that they give it, but by determining the Study downwards which our as well to the Uterus as Intertines so that Discharge there is only accidental and is what would not take place in the Hoad; It is most likely that they thicken the Blood, and therefore are improper in a Philips, for here the Blood is already too thick. If there or abstract whose is they do hurt, in a thick State and whose a stalutory high they are by no means to be given, for who would go a bout to internity Status.

He likewise welflysters to evacuate the landents of the Obsomen and where we can't get down Drawties by the Mouth as in Oppolesies & Papis of Casar we have fecoused to the Method to stemulate the Alder fines; we give milder to relieve the Sead or Longs, and remove the powers of a Governable; we never others and Formatishow to relieve Colechs, we can likewise give great thelefty the minthe Stone of the Stidness, as the folon runs round close by both, but here they should be given in large another, when they will also verve for a Tomentation to all the Intestines: In Alers in them we can apply Digestives the way; we can throw in Albert on to Opi ales whenever required and also Ostingents and talovered Kinshort Ministerines of all there is not a sufficiency of this on make the Intestines be properly stimulated, such after fourging will be costive for two or three Days

another land of Evacuants is Divertiches which are not so wram in their Operation, they are either alcaline or acid, with being the Jose star of the Stiennes that both will encreave their Jeers how. Hanthar wides

rides get into the Black in too great Quantity though they are volatile Mealine they will be carried off by the Hedneys which is first apparent in the Bladder; acids reach them so soon and unchange as to occasion the Strangury in the Bladder, this always happens to myself, when los Water gives momout Relief being the best Deluents The alealine Dewretiche are of great the in The Subjects that are troubled with Calsculow Concretions, and though too much have been vaid offit The Thenew Medicines they have certainly done good in some Cafes: The deid are of the in Tordencies to Retrofaction particularly the Gardul phuris which I have known in Droffice to be of great lise: Diapharetiches encrease the Materia Broperabiles and Sonsibiles, they make the first paulo plenier though not amounting to Sweet: They are either such as de tray the which is hich oceasion to great a Townen, as are all accoulated Posions which have this Effect in hot Levers, when Gromatiche would make them burn the more; for they act by timulating the Solids and encreasing the Impelus of the Bi; to make them the more effectual we give Opiates to class the Shinish the live of both we whould alway dilute with Water: They are indican to in venereal lafer which have been intirely relieved by them the Cary Towers require great weating; The Meason of the Requests very volatile and requires profuse Sweating in some but not in others, which must be determind by Experience: Awas observed by the Union's that Hature made her Cefes by Inflam mations on particular part, and that frequently the most noble to the Lofs of their latients; they therefore attempted to invite her to par-Micular packs making the Shin ced by a Ranigmus; how often this may have succeeded Ihnow not, but his a tractices which may be of go

Use in the small that, for by it you may bring the Pustules to what part you please! Sydenham vaid the Small Ba was more or left dangerous at recording to the Quantity of Sustales about the Jaco: Co Woman in A Thomas's Haspital happent to be taken with the Small Pox when the had a low on her Leg, and it was observed that that Leg had more Partules on it than both her arms and other Leg; a little Girl falling down chaft the Shin of arm, voon after whe was veigd with the Small Pox, that arm was prodigiously crowded with Rustules whilst all the other parts had very few; athyrician who now practizes at theoberry coming to attend It Thomas's Hospital deserd to be inoculated by Michole; the D' told him he would perform it, if he would consent to have a large austic first, law upon his lem, he agreed to it, and being afterwards inoculated without knowing why this provious method was taken; he waw has Com loaded with histules whilst the rest of his Body had but very few, the au who was hopt running for vix Weeks before Inoculation; and by these Instances it appears, if the Danger besto be estimated as Syden ham vays by the Mumber of Partules about the Head and Jace, this Practice may be of infinite Use: In Deliriums where there have been too great a Tendency to Ruhefaction to venture upon Blisters, I have applied stimulating Plaisters to the Leet with great Jucefo, and that in the small Pex, upon which the Blood flows more frely to the Seet and the Head is relieved, and likewise where the fatients have been wanted to be rougd, and yet it has been dangerous to venture either on Blishers ou stimulating Corale, which is often the fave in malignant Fevers & Raplex pot which absolutely forbid the live of Blisters; these supply the Place of the Thanigmus of the Unciento:

Canshander

Cantharides live upon Invects and even one another and so abound with a volatile alealine Salt; and it is reported if they alight only upon the Shin in the Country where they abound they leave a Blister behind applied to the Shin in Plaisters they Simulate but never till they are depolod by the Materia Perspirabilis, being deluted with that they enter the Coustistation and fuse and attenuate the Blood, Mature occasion a large Suretion at the place where they are applied in order to wash them off; they are very proper where the Juices are rivers and sluggish . Thave seen the small Pox with Predules per feelly watery which upon the application of a Blister became pere feetly concocted: a Girlhad a great many little tesicles about her filled with watery Matter, Do Plum her gave her the Timeture of Gon Marioes and in a short time they perfectly maturated, dried and drops of; it weems as if by their Heat they were capable of produc reing Suppuration: They are very improper in Spitting of Block; where the Juster are broken and under too great aheat they are bad; they are sometimes receps any for large and long Deains, his Blisters I am speaking of:

The lautery is either actual or potential, the actual is when we apply a hot Iron which we the Way the Ancients open a Ubserfice, we apply it only to food Bones; tout an Objection has been raised to this Practice; to this Effect; that the Intention of Expliration is to separate the mortified part from the sound, now say they so far as your Castery is applied so far you destroy the Tibres What whould throw of the mortine part; but in venereablofus and sometimes in others the Bone shall be cariated half way through

and therefore cauterizing will be the most experitions way of exfoliating it, and it is not coperated by as some imagine: The Potential is applied to open althoughes, by perforated the inters, the Eccar being formed you raise it and the Matter runs out; some chooser Incision cutting out a larger aval Piece, objecting that the Eccar is too long in separating, in which times must a are offen form it; but many will substant to the lautery and not to the chinion; in the Jace or any part where Sears ought to be availed the Strife is to be preferred

As Jones are intended to carry of a constitutional Annous they should be large and rather mode with a laustic than Unife for

that Reason; they must be kept open a long time;

There is another they of occasioning a large secretion, which is by the classed Glands; the Ancients chereased this Discharge by shime classing things wrap's upon Mucuoes and this Discharge by shime is at present is not much in Loques; We perform it by Moreury of flied either externally or internally; many engenious Hypothefor have been raind to account for this Concuation, but it surprises it why they should endeavour to account for this more than any other why they should endeavour to account for this more than any other cent, after the Upplication of the Moreury is taken in the wame manner and with the same Symptoms as if it were a Depuratory Gener with a general Tension raind by Mature ex Southfulo to carry of this Matters:

Lechure

## Lecture 36th

## Of the Difeaves of the Bones &c)

In Order to understand the Diferent of the Bones it will be proper to cale to mind what I have said of their Structure, from whome you will persoive that every Disease must have its Seat wither in 9 Cartilaginous Fibres, in the earthy Matter which surrounds them or in the Stuids which circulates through them; the first which I Shall consider in the Uncylofis; this is only the Union of two Bones naturally distinct, by the intermediate Sigaments becoming bony; The laufer are a loo great of sigich Disposition of the Blood underly common the pose of the Body; this is the love in oto Geople whove Toes are generally ancylosing and terbebra of the Back, because these parts have little Motion; it may proceed too from a Stagnation of the concreting June which should pape theo them, & this may proceed from Inflammation, Contracion or Meer: In verophulous Swellinge near the Sounds the Hirds are confind, which depositing their care thy thatter produce ancylofer In Mors the Cartilages arecore ided by the accimony of the Matter, when the bony Titres shoot out from the End of one Bone to that of the other and ancyloring

The Bener are subject to sen Clumours. The looslefus ofwaring a fuelling or Energy of sound Rom; the Secretafus Somora is a swelling of a foul Bone; in the former lave the Firsteum being the Swelling of a foul Bone; in the former lave the Firsteum being deutroyd the bony Fibers are no longer confind in their proper Bounds

and so they whoot out firm; In the latter fave the bone is cariated:

There is another kind of Tumous which may be called Ecostofis funzoos; attey in A Thomasis Hospital had such a Swelling on his
Jaw that it fourth his Took an Inch or two from one another; it was
a great by the Surgeons to take it off the King being ome logo, as it
looks Hasty, the Operator to his great Surprize found too much the
sistence, the Saw then was selat that which too made last title
Impression, but by pulling and cutting, he at last made it separate, upon Examination it appears to too made up of fleshy and
bony Tibres together: The Tophus is an Exercisence of bony Fre
were extremely hard ordivarily but rather oretaceous under the exiternal Samina: There is another, Jumous call & Gummi which is
properly a Difease of the Periosteum loaded and become thich with
tonereal or other Motter):

The Bones sometimes grow edeceding bettle, which is common after a long Dipase on Salvation, as if the Cash laginous part was wasted, and leaving the Earth behind made show more brittle than or Dinary, for his to the Carth behind move that they over their Sough anely, ash's to the Carth that they over their Dipaser; this is curd by thest and good nourishing Diet. Opposite to this Dipasers another call Holisies, where the Bones bond under the Hight of the Body; this is very remarkable in Richetty (Biloren; and for as much as if Depositing the bony Matter is the Effect of the his Vike, so this shows that to be weak, not that I would be understood that upon this Decomt an Usia gets into the Blood, is carried to the Bones and there is the life of the this part into the Blood, is carried to the Bones and there is the so

their Earth, for Socieve such would be in consistent with Life; but my Opinion is that the Disposition to Elevity in the Juices occas no the Earthy Matter to remain depolod and suspended in them, and as there is a constant Haste by a continual liver lation, of that which is already Bone, and none or very little Earth now deposited, the Bones must consequently grow weak: So that there are two distinct laufes of this Difeace, the one is the Dispositio Uliment in volcon das lub. Stantia cretacia; the other Fibrarum debilitas in conficienda Subestantia cretacia; and the Chymisto ale agree that theos dipoloe Eartho, and that in the Suman Body Boerhoave calls Humor air Do validus : To this preternatural Softnets of the Bones is owing Bookcomps, for any thing which happens to set the Body on one Side occasions that Side of the Virtebra to be most prefet upon it giving way by Continuance grow thinner and the Person becomes crock. acd: Whident at Oxford grow crooked only by carrying his Goven conwhantly under one arm which could be no great Might; the thethods which are usually taken to correct this Deformity, such as Bolster zing, Siff Bodice; and Seed Backs serve only to render it much worse; for by the Confinement the Chiloren are uneasy, they lean to the other Size to relieve them felves and bend the Spine in another place that contrary they making it then take the Form of an & Stalick; and as libbority proceeds from an improper Inclination of the Body to meetice, several Inconveniencies arise from it, the Sunge will be prifet upon too much by the Riche on one ride and by the Scapula on the other, the Stomach likewise will be incommo add

and Sanguification, so that Diges from with not be performed so eavily, and Sanguification must be greatly impeded; but these are renered of the Means they use to relieve them because they encrease this Copine iment; but these whould have all this bootly deberty that can be, there Constitutions should also be whongthen d by Steek, by Aromatiche, and by whatever will encreased the tistota as Rubbing, Earnive beans in Order to make the Spine wheight D'Vichols has prescribed a fiece of Tope to be put round the Body with a Shirt fix to to the which shall be applied to the convex Side; putting it on every Night at going to their bis will make the Chilo always lay on the hollow Side; as the other will make the Chilo always lay on the hollow Side; as the other will make the Chilo have many reacquire their proper will be very uneasy; this have made many reacquire their proper Sheightnofe: a Gentleman fording his Son grow crooked his up his right Arm as that was the hollow Side; and more him every Day which his Sop with his left Hand, it had the desired Spect:

The Territo is a superficial laries, extending sometimes through rout the whole Bone; this is a terrible Difase because you can't explicate achole Bone of would be very hard to take offer inde upon this account; this is owing to an accommences thatter which destroys of Briosteum first and then corroses the external part of the Bone to atlutures or Jounk it destroys the Ligaments and Cartilages upon which the bony Fibres whools and and joining logether aneylowing of part; The Ligaments are sometimes of if he be partitle aneylowing out from the Bones themselves, this is another Species of Aneylof is commented to Bones themselves, this is another Species of Aneylof is commented to the Mithey of the works have mention is before; it is the Oceasion of the Stiffuely of the works.

The

The Spina Tentosa proceeds from an Inflammation in the Marrows turning to an abocefo, the Matter of which putrefies, and contamis mater the Bones in the inner most parts, spreading and communic realing it acres destructive foraution from thener externally, and falling down on a depending part putefier it, maker it well and creater infinite Tain, which to gether with the great Dircharge com monly hills the Batient; the usual Method was to amputate where it was practicables for say they, it began in the Marrow and therefore is a lost lave; his not unusual for that we to make her lifes hereth then this is always the land equence; running from one part to an other. Mil Hill in the Joch was the fout that healed this Difease ratio anally, for he considered rightly of it that nothing more wanted than a depending Orifice, for this Reason Says host must be treated as an absech by applying a fawtie to get to the Bone and then make a Perforation into the lavily on the defending part, by this Means you evacuate the Matter, and then you may mundify, digest and head it wound: I know one lave in which the Bone was well to three times its natural Diameter, and was card by him in the Space of A months: Marcette rechons another hind of Spination tosa which is agreeable to what we call the white Swelling, but that is widely diffe rent from this: Of this Mature is another Depart which takes it Rise from the two Tables Intermedium of the Shall of which obstinate Head acho are the Consequences, the Matter gent to preads a great to ay about the Diploe , & o motimes pushes at one place and makes it swell; if it be opened the Matter is everaled, the tart mand feed of Bone explicated and then it heads up, but it frequently happens that the Trepan is required to be applied in many places, and this ought to become assocnast is known what the lave is, which may prevent a dead of this relief towards Patients are chiefs towards Patients are chiefs towards Patients are chiefs to this Disease;

He should not readily imagine that is hard and compact as labstance at the Genes should be subject to Consumption, but why should they not since they are vascular and have Things constantly concertaing their them, and defending in them; this then should be attended for their wasting and falling away as well as other parts, accordingly here is two Instances of it, the one as other who receiving a shot in his Thigh, it look them the Scriveteum being pretod upon, it was obstructed and the multithous the Scriveteum being pretod upon, it was obstructed and the multithous the Scriveteum being pretod upon, it was obstructed and the multithous of the Bone of the paining into the Bone, in Consequence of which it wo much wanted as when the daile not to be above help as big as the orther; the other love was a shad an otto be above help as big as the orther; the other love was a shad an otto en solve ably; there is a very common love in Salvations, and particularly in the lower Saws wo cometimes will leave the Geeth with lettle or no Support?

Mon the Bones are eston away by an alcalone putied matterior - there out wardly or inwardly, this is calle afaired, and may happen from veneral lafor; in Scorbutichs or any corrupted State of the blood it may also hoppen, and that by the Oil or than ow becoming putiefied, running through the Channels of the dione and corroring them; this substanting some servinually wasting and fresh supplied by the Greulation; & the Cils applied esternally will not earlie the Bones, yet by getting into the Tubes which lias to their law they and obstructing them grows into the Tubes which lias to their law they and obstructing them grows to ance

rancis and spreads its Infection all round it; if the Bone be brought to this State, there will be weakness from its Substance being consum's; it will shoot out a Sort of fine Sexture like Spines which give great Bun and Inflammation; Jung ufes will arise in the adjacent Hom. branes; and the Putrescency will be communicated sometimes very specify and extensively to the other Sarts . To that a laries is an Ul eer from Subsefaction; and in Order to cure it we must consider from to Dipare it has its five, whether veneral scrophulous or Sworbutich, and then Arihe at that which soover it shall be; to the Bones themevolves we must apply such things as shall absorb the Moisture & correct the Lutrefaction such are the Phlegma Sulphuris, So of Mine Markich lepto in It of thine or Minh W? the Bone being by this means hept dry little Granulations will arise and push of the mortified Bone, and the we commonly say explicate yet it often comes away invension ·bly small; you may apply too a has patory and make little listore. tions with a Terebra in order to take offall the Devistance you can to the riving Granulations; if the laries be deep it will borne belong to have Precourse to the lawiery, because it will be impossible to heep the Bones dry without: a Person had an Exostofis upon the Selia; to which, Way being made by a Courtie it shot out a Sutrefying that der o made alaries of a provigious Extent. A Serson unfortunate: - ly broke the a Stumere, which being it managed some thatter generated upon it which abserded and made a the page for itselfale round the Head down into the Cavity of the Bone, carriating it besterrating it from the rest in the Form of a Plug: Some venere al Mat. ter was given to aloove which lind about a year after and then son

of the Bones were found carrated, a Goove's Foot was dipped in the Mak , terofa venereal Chancre and it shot out a large Trongus -One of the most common Difeases that the Bones are subject to is Fracture, which is to be die linguisted by the vistaled Form; by the Rones tiding over one another call decurtation, or by moving the last the Kones will be heard to crackles called frepitatio; But when it is difficult to find out you must make the Person left some Weight with that Sind, upon which if brake, he will feel great Pain, or in lave there be a welling or a natural Thick note that the Bone can't be felt it will be proper To make him move some truscle that runs over it, and in all Probabilis sty it will be prick's by some of the Splinters if the Bones is broke : Ithan been ashis why the Kienes Should break more frequently in the Hinter? than in the Summer, we can attribute it only to the air's being colocies as to himder the Haid circulating feely, a Good Strife or any thing of that hind will break sooner by a fall in the Hinter thon in the Summor: There is great heason to believes that the Bones will break spin staneously from an internal lause, without an external Injury; I have hadales of this hind related to me by Bersons of undoubles terarity There was a linnan in Hastinamitar , who was waked suddenly out of her Sleep by Poin in both her Shigh and died prevently upon Examination both were found broke; all wech proved from mortifications of the Banes: and it is very possible for the cartelaginow Three to mostify, which being one their Sate the earthy Matter will soon crack, and this will be a Sportaneous Fractures:

She Simple Tracture is only the Separation of the parts of a Bone from one another; the Signs are only those of Fractures in general; nothing

nothing more is here required than to put them in their proper placests here them so; and if they be thate in over so many Places there is no him of Danger for the Cartilaginous Silves will shoot out from each it, unite one to another, and where they are ile solor not well at all,

Nature always takes fare to unite them: The Compound Tracture is that in which the Bone is accompanied with a permanent Pain, Confusion, Ecchymofis which is when the Blood is stagnated in the superficial tipols or Homorrhage; The Consequences are either an aneurism, Corvulsion, Sphacelus, Spinas Ventova or Deprivation of Motion and Rivation of Course; The Merves and tendmous parts being lacer aled must bring on Consulsions, & Their suices being so aft to putrofy by stagnating will bring on then Afreation; if the Bone be broke into the Marrow there will be as prina Nentova: The first Indication is to replace the Bones, but if so much has pierced through the Shin that you can't draw it back again, as much as is necessary must be vam'd off; if there be an thouryom the Orteries must bestied up; if it happens in very hot Heather and the len ramous park are much lacerated, the most predont May will be to take The Simb of directly, for by this theams you prevent at mortification in

reunstances a Symptomatic Soverwill quickly come on and rage too high to be carded; and under the farity of Effects, but to lood letting in every where necessary and often times Amputation is required; work Accessor attend in the hat Weather than in the Hinter Season as they are then more subject to Tevers; the Juices of the time moving stay.

ifit oncoverzes your Polient nothing can save him; under theselis

- girtly maken them more disposed to mortify; if it happens upon vio lent Exercise or Satigue as in the lamp it is so much the more dange rous; but if every thing goes on well nature united the Bones to gether by a lallus: no one ever gave a rational account of what a lallus was, fill De Wichols demonstrated it; they have supposed it to be only a And offluten spring out and comenting the Bones together : a Compound Fracture in Bartholomeros Hospital was attended the abad Jungus; upon Consultation it was proposed to apply the actual lautery to it; no vays one of the Surgeons who is since dead, the hot Iron will melt the flue which holor the Bones together and then we shall have a new theouction to make. The Bones in fact unitalike Hounded Flesh, by the Clongation ofthe Cartilaginous Libres which mutually shoot and are received one into another; the earthy Parti seles concrete round them as they do in other parts of the Bone and this gives them their Stability; to prove this you need only macerate a Callus in access and the Effect will be the same as from any of the Bones: Il's use is to unite the Bones and cover the Spines loprevent their Acuteness writating the Muscles, it is sometimes too large, but in then exactly conformable to what has been said: It is sooner formed in Youth because the Fluids have then a due Impetus, and the Tibres being more ductile more easily yields to them . The Umon is casy in impregnated Homen but long before it is confirmo, because Homen are observed to grow more and more lax towards the time of Delivery, upon the decount of so much far the being spent upon the Tatus, so that there will be very little to compleat the Collus, it is slow

Ly performs in Old Men because their Stairs move but slow: In Mon of low Stabile it is likewise along time before it acquires a preper Shength; this shows the San's of pretended themedies to hasten a Callie by external application as the Osteocolla W for nothing more is wanted than a duck inferior and offere fine of the States, so that of Men may be helped by ticlawers and impregnated Homen and others that are weak by Corobor and, but as the ware a long time in take place; it may be better to leaver Sature to herself

Lecture 37:

Yould be pleased to remember what Shave before vaid, that all the Animal Study contain a certain to the of earth; that overy that had it figirity in the potents to the Quantity of earth it contains: if the Study happen to stop in any tart of the bedy, they will be valing; jeet to deposite this their earthy matter and form stony (encretion; jeet to deposite this their earthy matter and form stony (encretion; ter; and according to the various Proportions of these Principles ter; and according to the various Proportions of these Principles they will be called by different Names; The Thirds are also offer overstocked with Earthy Matter and therefore are readily dis post to the forming these Substances;

The first Sort are what Surgeons call encycled Sumous, one of which goes by the Name of the directions, the lendents being of the Convenience of Honey, it is chiefly thated and Oil having but little Sarth States? The Steatomas convists chiefly of Oil having but little Sarth States?

and the Otheroma is Earth and Lymphatick Fluid only, the finen fo of which deferpating the rest becomes pretty thick: Ther Pluides stag nating long in Membranes, the thinner evaporating leave a white hard Substance called Tophus; all membranous tendinous parts are subject to them; and are the same as what are called Chalk Stones in arthritic People, where the Matter is impacted in the Lymphatiches, so that it can neither get back ward nor forward, up ion this they mortify reparate and are thrown out; the Matter here is intravasated whilst the Tophi are extravasated: The Salwal Duck are subject to these Concretions, for the Saliva contains a pretty large share of Earth, which in it Papage deposites some of it upon the Lides of the Ducks, till at last is becomes a Topher, one taken from a Hone was as big as a Gooves Egg; when this hap spon in the human Subject prefer upon the Tonque and hinder ring the Freedom of Speech occasion a Sort of Boahing in the Toice ) these are call & Ranulares: Such Concretions are often found in verophulous Batients in the Bronchial and Mesenterich Glands; those in the former Obstructing and profing whon the less els occasion them to inflame whence ensue abscepes and Weers, which end in Convumptions; and if they are formed in the latter, by producing abserges o Ween ations the matter may a breede, get in No the Constitution & terminate in Consumptions: The Juices are even capable of producing these Concretions is

out of the refices if they happen with a Milelaw to fall upon; a stone had a Stone form & in his Stomach concreting round from Bins

Find as lig as a large log; another had alyider for its Muchan: Sometimes the Galt in the Galt Buch and Cyclin Sellin forms Con-- crations which differ according to the different Constitution of the Bile; and as that is different in the same Persons at differ ! so there happen different Laminations; the tile you know con wish of lixinous Salls larth and Oil, an uniform, saponace ous, Digestive Fluid: Accordingly when Oil abounds the lixinial Jalu being too small in Quantity to keep it flaced there will be a fully Concretion; if the Bile then changed its State to a dust mix sture round they will be a bilious Concretion, and again round " may be another consisting of Sat entirely There was a lase fell under the Observation of Domas, alvanan of a very fat for this tion 76 years of age was taken with the Jaundice, who had a large Swelling on her right Side with great Sain which hills hor, upon being open's her whole Liver was found schimons &in her Gall Bladder was a fatty cylinorical Concretion, it weight Bits it Controwar bilions; three Inches inalongth, & two and half in licumference; another was taken out of the Gal Blad. der of D' Tindal whose Huclew was fut and the other bilions, this did him no hurt the convidenably big, but another about the Size of a Rounecoal Sea but of an inequilar Sigure, getting into the Quet & not being able to paje to the Duodenum was the Cause of his Death; Those that are cubical and of other in regular Figures are purely bilions; the fatty are specifically

lighter than Water; there are other bilious Concretions call of opharecous which form Lamina in the Ducks of the Gall Bladder but are not common in the human Subject; but Sheep and Oxensare subeject to a Difease called Sles; that is, little worms in this part of iply this tophous Matter round the Inside of the Ducks to make em welves Houses, as many of this kind of animals are observed to do in divers parts, where they inhabit I have one Instance of it in the human Subject, having the same Hamifications the three Duch have: I have a very extra oromany bilious Concretion like a Sponge, the Lamina running from the Centre to the Circumference to the lixeumference perpendicularly, this was taken from an Oxo Gall-Bladder: another extraordinary thing is alfale Bladder full of Stones with irregular ones in its Duches Communis: The Signs of these Concretions being in the Gall Bladder is a weight felt there proportion able to the Height of the Stone wh encreases after eating because the Liver being then rais of the Stone will fall to the Sundus and prefe it more downward; atoimiting too attends especially if the Uneas inefo encreases there, which is the Effect of the oz amen Matura to remove it this Vomi sting returns too at stated times, as the Uneasings does likewive; that is, as often as the Gale Bladder is so situated as to retain e receive the Bile; for when it is fullest the Uneas inefo is great rest; upon their there commonly follows a faunoice: If the Stones Torge in the Duck there will be a Jaindice in Consequence of the

Obstruction of the Bileinto the Duodenum, and to this bilious Tomitings, by which I don't mean that Bile will be vomited, but that this Disease in of Gall Bladeer and Ducks occasions them; if the Sones are angular the Pain will be more acute; this will occasion Inflammation in the Ducto, which may be propagated to the Gall Blader and Liver; hero will be what they call slow ho eliche, the Duodenum becomes mortified, and the Unimabdies in afew hours: To remedy the Disorder we are to consider if the lend that on be The qualich or belious; if phlogmatich of fat, in all brobati -lity you haver the Seatoma; if below, you must expect with a Stone; the thinner the Blood and Bile is, the left with they dis. sport to form these Concretions; Consequently Drastie Gurges arebad; but you must give a great Quantity of Biluters, and to favour the Exit of the Stone, bled to relax, give oily Draughts for the same Pur pose; which in their Poprage become as it were an immediate Application, when this is done a family may be given to forwit down into the Duodenum; this ought to bothe thonage ement in a bilious Comstitution, where the Tibres are always Sense; and therefore the Duch are leable to burst upon violent Hochs: If you have the other Constitution to dead with, you ought to give some of the in Eiding lixinions Salle to saturate the Bile and de poloc those fally Concretions, for these archnorm to bevery powerful in fluxing Oils; it does not seem so necessar ry to relax hore, unligh the Hone happens to be large ) for then it

is absolutely regard before tomics for Sear of bur sping the Gate Dut, rehich the it might head again will give Opportunity for the Sole to got the into the lavity of the absormen, inflame the barte and produce attention:

The all the Parts are subject to stony Coveretions, yet whon we speak of the Stone; by way of Emmonee, we commonly mean those of the winary Papages, the immediately course of which is a Dis powition of the Salls to concrete, towhich there veems necepary a cer rain hoportion of acids, and were effether are most subject to this Disorder Lixivial Valle we know too havea Cower to difsolve them : Inflammations in the Kinies from any lawse by the Huids being relarded give time to form these Concretions; what sever thick end the Blood, or obstructs the Papage of the Uneters as costiver Habits by the Faces prefing upon them is likewise of Oceasion of them: These we find are either very fine molecula or Stones made up of them, or laminated Stones; the Inolecula are found in the Bellinian Suber nearest the Pelors, upon cutting of which the Edge of the Strife is often fund; these coming into the Pelvis fall down to the Bottom of it, and as there is no direct Sofrage from thenew into the Uneters, as the Urine heeps continue rally falling upon them owashing them, new Lamin ations and formed round them more and more till they fill up the Below, or so much, that being compreted by the Sarietes of it no movel! rine can come at them there, but they shoot out into that a mife reations of the Celves; so that wherever you ver a zamified Stone you may conclude it was formed in the Colors of the Sieney; and by the Refuse of the Parietes the Saminations become thicker on onex Too than on the other, and sometimes one shall be entirely wanting on one part of it because the thine could not get at it . The Consequence of the Obstruction of the Bellinian Jules is different from that of the Lymphatiches in the gouty Extremities; because they are not so meet, but inflame produce absect, and more difications, if the Symptoms be continued: The Sign of the Some in the Siring are, if it in protty much pointes, africking fain and the Ridney inflame, but if round or smooth a rule he any Pain; for the Minney have so little Son wibility that toole will carry a Stone there a long time with but little Pain, but upon Mation will make bloody Urine; in bending or coughing the Pain will be encreaded because the insternal Surface of the Polis will be prefit against the Stone: Ithe Pain be great there will be worniting as if it were a Cholick, but neither Romach now Intertines are affected; but the Southis if any of the Contents of the abdomen are inflamed Hatare webs up the action to remove the Obstruction, making it has general Instrument to relieve which source is affected well knowing to is proper to be done: In Consequence of the Inflammation there will be a Tension, and if great, the distended to feels prefring upon the Polore, will hunder the Urine paping into the Uneters, so that if this happens in both Ridnies there will be a Supprefit if in one only a limpid Wrine in too little wantily; if the Some york

into the thetere and be large, it will abrade the fine Membrane and break the Blood toficels, so if it comes away quickly you will have bloody thine, if detaind it will be copy coloured or black according to it Quantity:

The Effects of the Stone in the Priories will be Uleco a tion, abore for and mortification if the Symptoms continue; or a Supprefice of Urine : In Order to cure theser ymptoms it is necessary to make all the way we can other fore must evacuate the fontents of the Obe roomen to take of their Prefoure and this must be done by Eccopio this, which relax also in Convequence of their carrying of that pur Infactive Nidor, which would have stimulated all the topselve by continuing in the Body: it is ne cefe any to bless too be cause the Symp toms of Inflammation require it; Diluters should be given in large Quantities, not only to relax, but because they sorve as a Rivus to wash the calculous Matter away, to add Force to these we must give Opiates, an Diuroliches are always greatly afristed by them; Harm Baths are likewive proper as Relaxors, but because they encrease the Secretion of the Shin, and by that means leaves the blood thicker and more disposed to form these Concretion ons; they should be used no higher than the Midneys, but Glysters given in large Quantities, may serve the Purpose better as the Colon will apply them almost in mediately to the Groneys: Man of ale animals is the most subject to this terrible Defease,

for the Seas ons which I have before given; and as the Polois is

ramified, it receives the thine all around the Minney, but had the Invertion of these Tubes been directly at the Intrance into the Melecters, the Moleculerindeed wante have had no place to ladge in, but some of the Suber must have taken so long a hound, that the Matter would have been subjected to concrete in the very Substance of the Ridneys and so have made them obnovious to more terrible leve Bento; but in Beach their horizontal Portion couler the Ulrine to run out of the Pelvis as fast as it comes in, and so has no time to concrete : However as much Provision is made as was possible; to remedy this Incommonioney in Man, forthy overy thespiration the Nioneys are prefet a upon and the Urine chiefly forced out of s the Pelow, to which the Contraction of the abrominal Murcher go the contributes: In Pathorichs the Blood life els being very full, prefs upon the Bellinian Suber and supports the Unine; The Methods hitherto taken do not relieve this Distemper imme Porately, for Relaxers, Diluters, and even vomiting fails when the Stono is too large; because it fore cludes their to page; Some have presended in The lave to take it out by Exception; but let any Man consider what he is going to do in this lase; first of all here is no Direction for his Things because the Ridnigs listigher and lower in different Subjects; but support it should be attempted, how in We Shin, the Sat, the Longifican Dover and Boar Muscher to cut through, and what a Depth of Hound in this! but he has still to go further, he must must cut through a large Quantity of reticular Substance, and the whole Substance of the Rivney before he comes

at the Stone, in doing which besides giving an into brable he can't a: word cutting many large Blood tifsels, so that it is athousand to one the his Anife be directed right, but the Patient bleeds to Death; but out pove for once this should not happen; the Hound is next to bedigested, but here being no depending Orifice, it must either be made a tistula of, or the thatter will fall down into the lavity of the Alboomen together with the wrinous aerid Matter, and what can follow then but Mortific reation and Death? Now if all these things be considered, befades the Laceration of the Parts by bringing out the Stone when large; tokat man would be so mad as to attempt this Operation; or if he whould the even succeeded in it he avoids deverve, highly to be punished for exsporing the Life of any lower to his Gashnels: There have been buffs in the New papers of this having been done, but that has happen'd only when an abuce for having been formed by the Stone, it has been brought by the Matter and made to point at the Back, but what is this more than opening a common aborefo? There was on English Gentleman at Sadua extremely for hurd with the Stone in one of his Ridneys, he applied himself to marcetti the quatest Unatomist in that part of the Horld o bogo of him earnestly he would it out; Mar retti tolo him the great Danger, and her would run the Hazand upon no account; but the Gentleman's Pain being wintolerable Might & Day, and could get Relief by nothing that could be thought of, he important Marcetti strongly to perform the Operation, for vays he of you do not, I must run all over the Country to find one that will, &

probably shall fall into the Hands of ones of more to Tone for but left Suggested and experently to greate Danger; do but comply continued he, and whatever, we the Conveguence you shall be blame left; the Operation was agreed to and performed, the Stones was bot, but the Stirmy was so much wasted and the tople collapsed that there was little on not to more hage; the Gentleman escaped with a Swhile which was a very good Exchange for a Stone):

The Stene frequently get out of the Coline into the Unetow and There stops, the other preceding Symptoms of its being in the below, are then followed by a Pain running down in the track, Humbrief of the Thighe roften Pain in the Testicles, by the Mones profing when the Dear Howel and Herve which run down close by the live ter; the same things are here of use as were before mentiond, in it is got thro here it becomes a Stone in the Bladder, but it some times happens by distancing the Under, the inner tremb and burst and then the Stone gote in between them and falls down so to the Blis. adea, this is what has been taken for an achosion; but there is none such except in lase of a Jungus, which sometimes happeners I be fore toto from a Stricture on the returning tofochs, calculous that, ter Indeed does sometimes attereto this and concrete all round it & makes the how and only arkerion of the Stone in the Blander; the Bladder is sometimes initated and the Cake thickness, part of which contract and suffered the Stone oftentimes, this is to is commonly taken for an abhesion: These

These Stones are made up of blatte Salt, last hand Cil and what is more surprising of a buan tity of the more than half the things of the whole; for mone another in befour, and ve do the Laminations of the same stone according to the Constitution of the Laminations of the same stone a different times, one Lamination being form a under onex late of the Body, another under a different state, vo that where there are deveral Stones in the varie bladder, you may distinguish very easily which began to be form first; those the many they are nearly of the varie of the same before throughout, one of authorish grant taken from a Dog weight 21 Ounces:

The Stones act in the Wila door upon one or all these three dety it Buth, Surfaces or thingst. Some are quite Smooth, which they have attributed to their being the by others, but that is not twee, forward have been found quite wolf ary, and on the other hand I have went soven in the wome Bladser and all rough; the face is when the Earth is extremely fine and Oil abounds you have a polished stone, this donotes it too to be formed in the Bladder; where you were what is call the that the land or, in the mallerry Stone, from its Inequalities, this you may depend upon is an aggregation of renab Stones, united in the Bladder, in them there in a Defect of Oil bill wand ance of this if you put a male Samina of alone into the ine and pour for of this out to it, you will see a function of a love that a land Druneticks are to be avoraged in the Stone; for the form that love that alone Druneticks are to be avoraged in the Stone; for

this is the direct Very to make the Monor spinars that were before smooth; to make one tolerables become intollerable by its sharpfints pricking and vellicating; and dride get into the Bladder very little afters. The Mulberry Mones to are very lainful in Consequence of these Groughness. Hence grow in the Bladder to a very great size; to Mortichals has seen amount from one sprain to alway Ounces; but there was a Cose delivered into the Boysh Society of one that was far there was a Cose delivered into the Boysh Society of one that was most then from alroman which weight 36 Ounces, and what was most surpriging the never was known to have a Sit of the Some, but in surpriging the never was known to have a Sit of the Some, but in Some in the Coach one Day, a hard Soll of it was followed by a sudden them in the Bladder and whe died presently:

There's no determining the Specifich Gravity of Somes being defforest in different Laminations: All the Symptoms arise as before said from the Sign, theight, and Surfaces of the Somes; a hair is
felt in the licaion of the Bladow; and upon Motion is encreased
from the Founds profing the Cats of the Bladow: An Sucontinence
of University on the Uccount of the Donesion, and tature is active here
as well as in other lafes, one Day a terson shall have a Sit, the
Days, alvect of more, and then returns again: Alveight will
be felt in the Bladow greater or left accoing to the sign of the
Some and Position of the Body: Or Jenes may from the Some profsing upon the Receive and giving it Jenesian: Purities in Pone ocsing upon the Receive and giving it Jenesian: Purities in Pone occariond by an Initation upon the Neck of the Wadder Growstant
Ropon

Propensity to wine; there will be their in the Sosticles by profung up on the Saicula Sominales and the deference all these proceed from I bouth of the Stone; a Suppression of theme will happen from the Reef-

The lyre is either preventive or palliative; but all lare shouls be taken to cure those of the Kinnies, for which no heating medi: reines or warm Diaphoretichs should be given in as much as they Deforpato the Fluids and thicken the Mals of Blood : Drashe Burges should be avoided for the same heason; acescent Dict is byno Means to be allowed because that is capable of forming the worst of Stones, but it should be such as relax and deluter, when the Sashent will not consent to be cut we must aim to make the Stones tolerable by changing them from rough to smooth, and by what we observe in sawing a Stone this seems to be possible; for here you shall see the Muleus was rough, the next Lamination smooth, an rough and then the outer most smooth again; we likewise take Notice of the different Clours of these Samunations, one shall be white, grey or yellow, another red or black, or of a blown compound Led of these; the darkest is that in was for med in the very word State of the Fluids, tonding to Mortification; theyellow we count the best; this is a fircumstance of great live in cutting for by this we know the present Disposition of the Fluids and so prognosticate accordingly; and if fare was taken to preserve these Stones and examine them and a His long was given of the Berson's Medicined Det, we could come to a very great bertainty how to make the most uneavy

uneary Stones casy, if not disvolve them which wa thing of very go Consequence and would be of extensive Use to mankind; for where toe see this great Change of Saminations, it as undoubted butthere have been asproportionable, one in Diet and Medicine; Rones will be formed round any thing solled enough to give them a Mucleus, Grumer of Blood have been the Bafis of some : The Obvolute ( gre of this Difeore is Litholomy, and by proven ling dafterwards: This Operation being berrible Pople have been very desirous to find out Dipolocate, and ilveems as if it were possible; but if a Sone happens to fall in Preces or crack whiles a terson is to him Sithon to plies, his very unfair to conclude if proceeds from them, for they frequently do this spentaneously; Shaochnown Instances of it myself; this has given Occasion for many things to be wice up without any Soundation; But there can no Certainly in Moreines of that Tribe, because what is offermininand lasquile have no Effect in another or perhaps a bad one; For the voveral methods of cutting for the Stone; to the Conveniencia and Inconveniencier of cach, see Sharps Surgery:

Lecture)

## Secture 38th Of Conception, Differen of Reguent Homende

The Parts of Generation having been already described it is need; - left to say any thing more but that a due Order and Disposition of them is required to both Sexes in Order to propagate the Species: The male for his Part be Sides this must have a good general State of Health, his Semen must be thick and heavy, which is a necessary consequence of its containing many Unimalcules, and theremust be also a proper Disposition to Venery: In the Homan is required due State of Health, a General Habit or proper Structure of the Parts, where we are to consider the Menstrua; as Homan was intended the Instrument to nourish the Fatur it was requirete she should be so built as to be able to retain it some time; in (300 requences of this Shucture as she advances towards Suberty too much Blood is accumulated for her own Hourishment & Therefore ex Instituto Hature inhoduces such alange in the Constitution at certain Toriods that the superfluous part may be evacuated: That this does not proceed from a Julnely replan, because in that face, the elymptoms would come on gradually, of sterone tracuation was finished they would begin again and enscrease every Day more and more, till the Quantity of Blood was too great to be any longer supported; but on the Contrary the Couphon is sud den and unex pected, except from the rechoning, some

not having so much as half an hours Notice; and they often hap spen when the Thirds have been greatly waster by a Difease jand The this Oceamulation was finally intended for the Hourishen of the Totus, when there is nonerit is new pary that should be carried off; so here we have another Matus determinates prop ter Sinem, aspara on particular topich, and those which he fore admitted only Lymph now admit the Blood, so that here warrab Secretion of purc Blood: But if the tofich were buret from the Propurer of the Blood, the Effects would always be the vame ; the Hux would always be continual; but we find it is notes; but first pouring down leterations, soon stops and goes off; and no over who conviders the Halures of an Animal con imagine this to be the love, for by its so frequent returning, if so frequent a burshing of the to fiche, the Uterus must be found full offications: There has been great Dispute which part it was that fur nished the Menstrua, Uterus or Vagina, but the latter may as well as the first, for when the Uterus is scaled up they oppear sometimes the inless Quantity; and that the Uterus has a Sharein them is proved by several barned Observators; Morgagni has dificiled veveral Homen who have due in their Menstruations and has veen Blood coming the the Mouths of the tofret which is another Great of what before advance : There is no determining the Du

ration of this Slux, but it seems to be ascording to the Exigency of the Person some have it upon them four, five, six, eight or ten Days, and this should give us laution never to stop them but when the Homan is too weak, and in Danger from their fantion, ance, for Selieve more this chief has been done, the men have been thrown into more Difeases by too has his supprepring this Evacuation, than by any other thing whatever:

In Order to Conception the Uterus ought to be large and Nothing in the Colors to hinder it Delatation, the Sibre i must be proper expelation to much vafor fear of appointing the Satur too long; they ought not to be too tones, because then they would not asmit of Strateh sufficient, but when the Satur open to some Buth they would te are assunder and occasion an Obortion, & if they be very last they will not be able to support the theight of the Totus a due time: There must lekewise be a proper degree of Irritability:

of Irritability:
The fortrary to this Disposition is the lause of Starility:
if the spermatick to firely in then be disordered by Inflammation
or Sension, they will not secrete the Somen, if they be soo lax they
will suffer it to return again into the Constitution; if any otherway
to the Compression of the Levator Uni and they don't answer
to the Compression of the Levator Uni and the fum, or if there beary
in the Frostata or any part of the Exerctory Duck of the seminal tewicks, or any Collesity the Amificion of the semon will be provented;

the Senie must be well formed, the Ligament must be there to come profe the tein or there will be no Erechon; none of the Barte must be deficient: Man must be direct be properly writable that the Somen may be ejaculated at the time when the Uterus is in its peristatlick motion, or else it will be the own away: If the Ovary in Homen is schimous, if infland, or there be an Ubrech, the Unimaleules will die; if the Tallopian Tubes collapse; it will prewent the Course of the Somen as it will if they ashere any where to the Ovary; if the Ovary be dropsical and compressed the Tube There must be Barrenne fo; there must be a proper Dogree of Soit Nability or che the Semen will be ejaculated too soon and lost: It is matter of great Difficulty to determine whether there be Conception or not from a few Symptoms, but the whole being for Then together will afford some Cotainty: He gather attnowledge of it from the great Desire to Venery; from Saintings at a certain times from the Dryne for and hind offuction of the Uterus upon Coition; from Heat and Motion in the Peluis, oceasioning " same pleasing Sonsation to the Homan as she had upon the the replien of the Somen into the Uterns which is called the seconds? ry Extray; but ale are not vensible of this, or at least theix the Locally hinders them from acknowlinging it; however some have confested that in twelve, vialen, twenty four hours or more, different in different Constitutions and Crownstances,

that they have felt the same Heasure as at the Ejaculation of the Somer; this I have undoubled authority for, and is occasioned by the Return of the Uni malcules into the Uterus: They have then an unvirsed Shivering, the Sace and whole Habit seems binches in as if from fole, and get no Complaint of it; this I suppose to be from the Determination of the Fluid internally to the Morus: Nausea and tomiting proceeding from the gentle In takens of the Uterus, to is an action of the anima to distend the Orum and Uterus to make them capacious enough for the Satur, when that is done it is no longer continued; for a general Laxity coming on supplies it Blace: a Decay of Strength for two Months, for Nature intent whon this new Hork Does not supply the Muscles with a sufficient Quantity of Fluis; and this is very remarkable as there is at the vame time a Tension in the Fibres. here is no mechanical Defect, and therefore can't be from a me chanical Cause; and where that is wanting we must week for a moral one : The chief Sign that is commonly relied upon is the Supprefuen of the Menves with iout any Inconvenience: During the first Months the Wesemen is small ler the Muscles not being fill with Slinds, but contracted to force them to the Uterus: The Uterus is shut up by thelfluten, there is a Retraction of the Co Tine a inwardly which enercases and grows woft: The aboomen nowswells outwardly and downwards without being burther some, and the Navel is proteided forwards: about the fourth Month the Chil's begins to live as they call it and the Homan is quick; this is a Kulgar liver; for the Bits must have live from the first Impregnation, and before as one of The animalcules, but nowhe hav gain'd ouch Buth and Strength as to be a ible to make the mother fallen Motions; interiornad Homen who plad

their Belly it will be propor to consider not whether they are quich, but if May are with Bito; at the Emonth the Uterus spreading the Os Fine a be scemes thinner. Haturchnowing what she had to do, that an Infant is to be provided for, determined the Thirds to the Breach, which become hard would, devated and painful, and the Popullar being dutanded be come more computous. Some have an luption of particular Pinples which must be attended to creefully, not to be invistation for an eruption Sever Other accidental Symptoms are Drowning burn would Pain in the Seeth, which I apprehend to be from an irregular

Determination of the Stude:

Sometimes the Stopes of Conception are decived the the absomen swells, there are called false Corresptions; one of which is ventore; to be distinguished by the absormer's not being equally tonse) in all parts, and those who have been most conversant in this wifey say, it sounds like a Drum when struck upon; it will be greater and less according to the Heat of the Kody carefying the included diar, which cometimes makes this Bange happen sucdenly to arge and regree; If the Mistake proceeds from Hater, we must consider the several Sorts of there be a Dropsy in the Coary the Unimalcules must die there which see asiz roning a Flat thishorwell make the Dropsy more conspicuous: If in the Userus they will die likewise and bring on a greater Offlixion, besides there will be no Motion at the expected fine, or if any it will be irregular), it shall burst open and a great Quantity of Hater pour down, but no Jasur is to be found, dying in the first Months: An Observation was comme inicated forme where the Homan expecting to be brought to be, near Ilfal. lone of Hatery Hypation were executed into which the Placenta was hord thin here is greater than in the true Conception; the Abdomen large and every tong equal: There is a Particular talenofs in the loun sen an exclude that of a Dropoucal liver on; the lure is by proper livery belong be atos; if actually in the there by disculient Tomentations or invitating once to force the luster away; temits too by causing the there is be compression may be very useful; if these the hod are unsucceptals and you are certain of the love; the Name must be introduced, and if it be contained in a locative it must be opined oither by some little Instrument or your Inger:

But what by way of minence we call a false Conception is the Molais Physicians always look a upon it to be an Error of Hature in forming this Majo instead of the helb, tile Ruysch who was a Supravisor over dead Bodies in Holland, found upon Examination that the whole was nothing more than avitiated Clacenta, which upon the Folias dying soon becomes made up of Hydated and vometimes Cartilaginous Substances: There is ano other Sort mention & by Midwives, which consist of nothing but the fibrour Parts or Grumes of Blood collected together by the gentle Motions of the Uterus; the Ovum being small they love it. The Signs are a protornal Hardness and great Pain; there is selvom any Inotion or if it does hap pen to only an import one; it seems at first like thing in the Bousels; there is no increase of thight, and thatire knowing no Infant is to be prowided for, the Mamma continue flacid; or if any Determination of Thirds happen and with appears to exceeding thin and quite different from the natural: The Constant hule is the longer the Mola is carried the more dangerous; it is commonly expelled the fourth Month; if a Flux offil, happens after it is expelled, his a Sign of some Grumes remaining which him der the Uterus from contracting and closing the lifels; No Water comes away with it except And a how: One

One of the Signe which we have given of the true Conception is tometing, which if it be visbat prefer too much and occasions allinearriage it commonly begins when the Uterus want to be distended and ceases to it becomes sufficiently las: the Immoverate must be corrected by pay. ring hegare to the Plethora in which lase it is necessary to bleed, the all Fromen to be furged to take of the too great Profesere to which we may sub join proper agreable thromatiches: Pain in the Loine, Mineys and Groins, the first is from the Sigamentum Satur which is continued by the Peritoneum to the Mieneys which being distended when too tenve, in some part when the Uterus expands recasions Pain, that in the Grein is from stretching the Ligamentum rotunoum running down to " Os Pilis; there are relieved by a horizon tal Situation, by oily relaxing Indicines and by tolering: If the for as to are over intended they become painful, they whout then be kept warm with Slannels, release by blees and city Medicines, spirited by such Surges as will boot suit the Combin Aution: Os the Buth of the Uterus encremes the Blood carried by the Untorice downward will be obstructed from returning by the form being profet upon, hence farices in the Legs; these will be relied by a horis routal Position and sometimes by the Sheight Soching; the Satus profing won the Tion will prevent the holur of the Blood from the Labia Padenis, there will be rolived by Tomentation, Diwichiche and Searification muel be called in of attractification be to be feard Descen-· fur Meri may happen from an external Injury or Lavily of the Sitres; the Effect of which will der Inflammation And Sansion to this Coughast must be enjoined, a horizontal Portion, and being added must be held up by a life any or topical astringents; if the Fatus prefier when the

whole Bladder there will be an Incontinence of thine because it can't Bedistended; if upon the Nech only there will be a Supprepion of Wine, which must then be conveyed offby a latheter, but if you change the Posts tion these Symptoms will of Course go off. alongh is a very constant Companion and often dangerous, proceeding from a withated Blood, and from the Repure of the Lungs, for the aboominal & thoracic Contents are to be condidered as a Pluis, if the Uterus distends the Intestines must be forced up wards, these must prefs upon the Diaphragm and that again upon the Lungs; when the lough by long Continuance threatens a Mis car riage; it should be remedied by tolerding, Oily Medicines and gentle dur ges for the fuller the Inter tines the greater the Effect of the Shock of coughing, but you are to take Notice when this lough proceed from a vitiate tolord, it is vet up by Mature to change it, for by this Means the Sunge squeeze, Divide and attonuate it more powerfully: If a Diarrha a happens, being the Hect of Panitude and continues long, an abortion for the most fait follow: Bleeding then is moreated, proper Evacuants and astringente but no tomiks: The Hamorrhoids are very common at this fime as well as at others, and having no mens trual Flux now, there becomes too great a Quantity of Fluids, and the Tatus often occasions them by prof aving upon the returning time, they are curd by a horizontal Tosition, proper discutient Tomentations o Bleeding: if they don't yell to this Treatment they must be opened by a fine Lancet: In the male they are of-Hen critical intended by a Nature to carry of a Superfluity; an acute De rver is not a necessary Consequence but sometimes attends & occasions a Miscarriage, because the Uterus being in a praternatural State, the Cofe with in all Scholehood be thrown upon that and occasion attroche freation refication and therefore must carefully be supported; so her the Fover is to be taken off as soon as populate as well as in most (afer, but there is one in which Natura ought to be left to herely, which is when a foreson comes to his full front; to comprehend this you must consider what I have already said, that during the Emelofy out the the Secretary strongly made; as much Matter as populate being spont upon Nourishment, when this decount heer substantly of all ment when he is come to full Stature; Sature raifes a Lever in Order to fore open a calarge these Organs that a more capsous Secretion may row to made; to support this therefore would be to interrupt Nature and destroy the Persons Health for the future; but in frequent Homen an acute occasions absorbion and destroy 99 to one;

The The sof the Money continue sometimes a long while after ampregnation, which is the Effect of two much to look too thinklood, or holds. Care, must be had to beet, to a her ignorable Position to abstrain from lonery and all things irritating; a thin Diet should be ordered and in some lofes Astrongents actually cots applies to the Atomen, it may likewise be proper to lat Blood: The Inconveniency of this is goed, but hat from the Mouse is much worse which happens when the Homan has gone three or four Months with Pold, according by violent Motion separating last of the Placenta. The securious by violent Motion separating last of the Placenta. The securious is found partly, a lain commanly present using it; the Blood then questies down a wholly in a king on and continued to, the Specialion then is an absorbion bear to be with for on Death by the Hamorrhage carries of toth Mother and Satur. The

Homan must be hept quiet in Bed, must abstain from all things inis taking, must be bled pretty largely to take off all Prefours from the left evels and colo askingents must be applied, and if the Tatus does not come away proper afsistance must be call & to deliver her by Force, for if the Mother be suffer & to bleed to Death the Lavarean Operation will come in too late towave the Fetus; Ifthen the Homan continues so faint that no Pains return to promote abortion, the Fatus must if possible be extracted by the Feet, which is more easily brought away when the Os Tinca is thin and soft: In the first month the fatur is so extreme small as not to be found but will be expelled, & an lofluxion of Blood Abortion will happen upon veverab Accounts: If the Totus dies, if the Userus be loo tense, that it will not hetch, as soon as the lito be igins to move then, the Uterus will be fored into Contraction bespelsit, if too lax it will admit of too much Stretch to support it : Sudden Blows or Salls and particularly sheight Stays, for many of our fine Ladies owe the unhappy abortions by taking Juch fare to preserve their Shapes If the Fatus be uneavy it will irrelate the Uterus to Expulsion; The Signs are a Bain towards the Mioneys from the feling the Sign menty Flux of Blood from the Separation of the Place was; the Waters found as the Midwives call it, which is, when descending they force open the Os Since a little and bulge at the trouth of their Uterus in their Ham branes; One thing very remarkable is the Breast then immediately fall; and then nothing is to be done but to being the Fatur away by all proper Methodo; no more Fluids are then determind to the Breast but the Tension is taken of and the Will runs out of the Salus be dead therein felt a particular Height in the Uterus, for growing cate it be reamen specifically heavier than when alway besides it was than supparted more casely by a propor Tourien; if it has been dead some from there well be a Salow in the Matrix:

When the Symptoms of abortion come on and it be proper forestrain them, the Homan must be but in an horizontal Position, there must be no Comprehes put about the absomen, for the some have pretended to continue Bandage to promote abortion, they are all hur ful be cause they can't be applied without comprefing the Uterus, so if they are greatly decrive; the must a betain from all Initators which might occasion an Impohes of the Thirds : Shipportales says if you bleed a frequent Homan she miscarries; but we bleed to prevent a Misearriage; the heasen is whenever they bled it was in a large han. they and their Homen love left bux ariously; but such is the Deffer sence of our manner of living from theirs, that we are often abliged to bled three or four times During a Pragnancy; But our own Country People that live in a more simple Manner and we good Exercise; miscarry left and setoom blees or never so much If abortion be threatned and the Haters are not come forward, glysford may free went it by their helaxing lover, and Delivery is never to be attempt sted hill they are formed: Therein greater Danger from abortion than a natural Birth for the most part, because the Homan has then the more upon her, having greater Difficulty to reparate the Placenta; we must never be to buy in Dolivery, even if the Talus be dead, we must raly upon Native till bat Lymptoms become urgent; those

who are subject to abortions at restain times have their Uterus too tense or too lax

In Order to a natural Birth the Fatur must be of a right age and Strength befides Situation, if he comes too worn the air will be into lerable, the proper Situation is with his Jaco towards the Back of the Mother; his Elbours upon his Ances and Hands on the Sire of his Face of the Ho= man it is required that who be well shape, her telois wide, and no Uncy · lofe between the Or Innominatum, On Sacrum or Subis; the Or Sa= rerum likewise must not be too near the Or tubis; there must likewise beno apophy fir in the Selow; she must have a proper Strongth and Laxity: The Signs of an approaching Birth are Pains towards the Some running to the Stroneys, which is when the Chito is rightly place with his Head upon the the Os Tince, and then they ay the Pains and wer; but if the (hild lies obliquely the Pains will ans wer in some other place; this is accompanied with a Change of Form in the whole abdomen, the Swelling appearing more downes and, there will be an Incontinunce or Suppression of Urine, according as the Situation of the (kits is upon the Bladder; as the Membranes prefs upon the Os Tinca stopear and the Haters are formed; as the Birth comes ne area the Pains grow greater, and there is a general Tenvion over the whole Body, and the Pulse which in the Morning was weak shall now be frequent full and high; there will be a hearef in the Guntenance, the external Mouth of the Uterus swells, the Homan vomile andy On Tinea grows more open: The Birth being now at hand the On Tino exis open a at is Estand, the Haters are more formed, a particular

Pain is felt at the Sunction of the Innominatum and Pubis, there is an

universal Shivering without lote:

The things neefeary to be done to make Delivery cofe and easy are are, if there be too great a Juliefs to bleed; the tostures the ulto be erect, Enollient Cinsments should be applied to soften the Parts, and if the Labour is like to be long give Gorals at the Beginning, that they may have time enough to take Efect, for when the Spirits are exhaus Fee they come too late; the Aboomen ought to be evacuated to give more Goon; and to make the Utorus more strongly compressed attenit may be of great lise; for this Purpose too Homen are desired to cry out: Ou to the Upair of Parturition, the Diaphragm, truscles of the Uto men and Parietes are employed to expel the lists, at which time the Mother has a committed Motion continued down from thewory Mech; there is no stated time for the Child's continuing in the Utorus, for if be not too large nor lier uneasy, the Homan may go twelver atherteen Months as well as ten, for we have had undoubted Histories of the same; we that Portwrition is only when the Jatus becomes too large to be continued there, whon which it initates the Mother and is brought forth; bevides many have been born with Longer Stair and Rails than can be expected in the ordinary time;

When the King are most tiobent the Situation of the Satur is to be examind, for at time the Uterus is fulle down, if it is wrong presented, when the Throws are of the Mane is to be intro dued to turn it? If the violent Pains go suddenly off and lamiting come on it is to be fear d some of the lifele are lover aled; if the Spir its sudden Lyinh a mortal Echavasation is to be feard : The Ober the Homan

is, the vlower in bringing the thils into the Horte as her Tibres are more rigid and tense: as soon as the file is born we are to look, after the Blas reentar, which is nothing else than an Proternatural Shicknow of the Ovum, and is reparated by the Mother by the Contraction of the Uterus perform red by it's muscular Fibres, to the Opistance of which is brought in the Abdominal muscles and Diaphragm; if it does not come away the Throws continues with an extraordinary Hux of Blood, as some parts of it are separated and the Blood topsels continue open; a Weight also is felt in the Uterus; the Effects of its Continuance will be a fatal Hux of Blood, or else by inflaming will bring on a Mortification . It should generally be left to Nature to expel, hill it Retention is likely to be dangerous & then it ought to be feeld off by the Fingers and not pulled away by the Navel String; and if part of it happens to beleft behind it must be expelled by fordials: If the Placentar grows schirous itis very difficult to be extracted and dangerous to be medled with for Fear of a Cancer. The Funis often is very tender and easily drawn to preced:

Lecture 39th Of Difficult Birth, and Defeases 800

The Birthmay be difficult both whon the Account of the Mothers and the Salus: If the Mother be too young and not whong enough to produce outficient Throws, or if how it that her Sibnes were too tenses, and will not give way; if deformed, or there be any preternatural anylof

Anylofis between the Os Savrum and Os Smomin atum, the Buth will be difficult and require Opinstances: a Temale Chilo being letfale when young buised her Telvis, occasioned an Ancytofis between the Two foremention's Bones, by the Ligaments of yfying, upon this as both Lives could not grow alike who became crodhed; now what mivery must it be for such an one to go thro Delivery , when all the Shetch must be on over Sider of the Homan be too fat, as a Quantity well then be upon the Brotum and take up a great deal of from, it will make one Difficulty; if too lean that is an evicentifying a Torney of Constitution; there must be a proper Dogree of Spirit for if she be deprefied, have too great Fear or Languiones it will be difficult to deliver her, and this is very happy that as the Pains encrease the Spirits rise: Sany great Evacuation or acuter Defease has preceded, her Strength will fail: On the Part of the Satur the Buth will be difficult, if the Waters come first, the Diaphragm and abdominal Buscles prefing every thing downwards; the Head of the Tatus is profed against the Os Tinea, that giving way a letter the Waters bulge, the Membranes burst and the presented parts come away, but the Head pushing forwards stops the rest, but there have been some Instances of the Over coming away whole; but if ale the Haters got away, the Fatus is more difficulty extracted after them: If the Totus be too weak that he can't exert himself as he ought, if pra-Hornahurally large; if he has any Steatoma, atty drocophalus or Swellings of any hind, the Buth will be difficult, but the most com smon of all is an unnatural Postuce, his Orms are not composed,

his lin, dog, or an dom is presented, here it is difficult of have before said that Nature ought to be left to heavelf, but me may conclude it ne refury to a first her if the Homan be extremely faint, if the falls into Bolweats and Syncopes, if the has lower town and comming out of them forgets who had any; if the inferent farts of her thoomen and tenerand inflamo?

Ober Homen and those of lean dry lense Tibres must be afse isted by a great Quantity of Emolicat Ointments, and should likewise be prepared by an only relaxing Diet; if crooked we should favour y Descent by an exect Southere, if faint we must give fordials ata proper time that they may take Effect: If there be no Deficiency on the Mother's Side yet the Wirth long and langued, we then may con belude there is some on that of the Fatur; and that proceed either cither from his being weak, through too great a Flux of Blood be fore hand, and it is no uncommon thing for both the thre and Iawho to bleed to Death if there be a large Separation of the Placenta; this was the last of Juins mention's by Heister; and whatever of speck the hils much has likewise Effect on the mother, in a Manuso we do not understand . If the (Pulse of the Umbilical to feels be strong the held is judge to be strong too . If the held be dead the first Symptom w the falling of the Breasts; a frequent Fainting, fated Waters; if it has been dead some time, there will be a lotonefor from the colo Fatus and a Weight in the Uterus as the Fatus is now specifically heavier: If the Hand be introduced the Head will feel

soft, there will be no fulse in the Junis and if the Cuticle be separated there is no Doubt of its having been dead some time; if the Meconium comes away without any apparent heason, that is another Indication. The Meconium is no more than the Jaces of the Satus accumulates from the intestinal Secretion, so that if it comes away it is either from Convulsions in articulo More tres, or obserfrom strong Throws when the hito happens to lay wrong which may profe it out, but the first is most frequently the lave and it may almost be depended upon as a sign that if Gild is de ad: If the Fatus be wrongs the ated the Fains will not answer right, as the Os Sinca is not profe & upon when y Pain is occasion & in the Loins by the ligamentary Tibres being) Shetch's; the Pain's too at this time are slow: When the Head and Shoulders both get thro the Os Since and wrong presented, if Waters steal away gradually: but the most certain Dragnostick is to be had from starching, if the Sect be presented first face must be taken the Face be fowards the Back which would otherwise be bruis d by the Or Pubis; when it is extracted to the Sips be sure the Hands be place one on each Side; it has happen's thro Neyligence that the Or Since have catched the Neck; to prevent it some have brought the Satur away with one Orm up, which is adding a Thickness to the Head that has already as little Boom as Hought to have, the best Hay is when the Kin comes night the Ordines to push it down with your Singer; the Body has

been sometimes full away and the Head left behind, and then some Instrument wrequisite to bring it forth, if you use the Hook you must force it into the Os Tempories as being the furnest; but if you cut it in Fixen let it be done at the Sutures which being the least officed are soft and flexible; whereas if you cut it in any or ther Have the Edges would be rough and give the Mother greatles reasings in bringing theon away; There has been a Doubt if the Placentable first to be brought away; if that be partly ve parales, this Methodought to betaken, but if it adheres well the Head should be first extracted; but in lase be entirely separated, that which die neetly presents should be first laid hold of: One of the worst lite. ations is when the Nech presents or Jace; in which when the Throws are of the Satur is to be furn's round, or else it Secture to be brought forwards; if the Junis be wound round the Mach or fied in a Smot about any part or pushed forwards, it must be disentangled by culting, and prish back again, deliver then as soon as you can, sometimes it happens to be too short, by which theans the Fatus is drawn back again after it comes forwards: In all bad Situations or tafes of Danger the best May is to extract the thito by the Foot, we have had terrible Nistories of mangling and learing to Brecer both Totus and Inother; In lase of Twin the Difficulty arises from the Water's coming away, when the Membranes collapse and make the (2,13 flably, hanging about it the last thile should be extracted by the Section elepho comes well, the Moinbraines therefore should immediately

be form and Delivery dropateled: After all this is over the first thing we have to do is to quard a sgainst lot, as here is now a large Hound where the Flace no acherd, which is subject to Mortification, if the Lips be contind Emolions and gentle Discutionto are to be applied; all Endeavours much be wed to promote the trilk by warmth, oily hedicines, and by Suching; if the fuld be unable to do it, some body else must tio a quite wrong the thod which some have taken to prevent the Bilds suching the first hill, it is unnaher al too, as it was our Dently intended by Nature to be a lungative to the the conium, and the same Provision is made in other Unemals : If the milk be too abundant, or for any he ason should be repelled, it must be done by Discutionto and autringents: Glysters are likewise very convenient for the Milk not being discharge it gets into the time and upon this it is no unusual thing to secunded Sools, so industrious is thative and hasty to relieve herself upon this Occasion of crude Aumours, so that Glysters ought to be repeated every other Day; the Mother however ought by all Means lovueble the this, for no Tood however contind by Ortean beso proper; notever other Homen's With for the thill must necessarily partate of the Constitution of its Mother, there must be a perfect Homogeneity of Shuid, so that no milh prepard by other Organs can be so proper for it, and as it is neg. eleter by Delicary it becomes greatly injurious to both, for it was

intended not only to nour ish the Sakes, but it is a critical Do-

termination by Nature, and if it is not carried of Difeavor follow as too many have experienced : Offer hits bir the Homan whould be put in a horizontal bouition, o inConsequence of Inactivity & Weaknow there is generally fortivenely from whence proceeds Heat and a Symptomatic Fover; this should be relieve by Glysters as often as necessary, but above all things, Regard must be had to the Lochia; In Order to understand which we must consider w has happened to the Homb; we have ven that a Determination of Sluide being made to it an Inlar gement of its topsels must follow, but the Extravasation of Blood was prevented by an de thesion of the Stacenta, another achasion is likewise made by a reticular Substance extending to all the other parts of the U herus; the Fatus now being removed and Placenta bull away, the Mouths of the tofiels being open there come out a deal of Blood, but the Uterus collapsing they are closed and the Blood diministes more and more till nothing comes but a Symphos which Ruid; but the fart where the Placenta adherd is to be consider red as a Wound from whence flows Blood, then a bloody Serum, a thin ichorous matter and at last a thich well digested Jus, after which the Part is quickly healed; but there is one thing to be observed that this Discharge is made generally at times, as if Pature em sployd sparmose Constrictions in order to getrie of that Fulness which had been accumulated; there is no certain time for their our Simuance, in some to 15 Days, some left and others more, the Bloody hatter growing paler and paler is afterwards mist with white

white matter; some haves perplex's themselves in accounting for the black who green Water, which is no thing more than bloody Serum Detain'd till it is putrefied in some theasures, & by setting some by any time you'll perceive it arguire afreeness; when they proceed in this Manner and have no preternatural Fator alis well; but by lying in the they are too long confind for Hant of adeponding Orifice, and thereby acquires ome ill Smell: If they are too profless there will be all the Effects of Inanition, as Syneope, Convulsions, pale Countenance, Weakness, Swelling in the Logs, from too great a Laxity of the tipels, & if continu's Death must follow; Relief in this Case must be sought for by taking offall Prefiure from the abomen, and as they genty proceed from Sparms, generous Hysteric fordials and the Applica stion of tolatiles externally but if they proceed from a high Impetus of the Blood, Bleeding is absolutely necessary and whatever cools A relaxed must be called in: If on the contrary they are supprafes too voon it is because this Hound inflames too much, for then there istoo greata Tonsion; cometimes they are directed another way, that in, by Diarrhaan; they montopped loo by the great Saint neft and De sprefure of the Spirite, and by the unversionable Use of astringents; The Convequences then are an acute Sever and Valure'in Order to re lieve hervelf determines the Blood sometimes to one part some times to another, and occasione Pain in the Head, in the Breasts, Princeps, Loins, and if the Uterus be inflamed, that will be constant , by fainful; the Belly will likewise well when those tipels are overloaded; there will behowise ber pizitus Difficultar, which

is when by Sparme on the dir topole, the dir is then confind which prefering on the Gula gives the Sensation of Proahing; Palpitations of the Heart, Syncope, Convulsions and Delirium follow; such are the Effects of this Frequelarity; there is nothing requires greater aution than the Tratment of this Disorder, every thing must be do ne with Deliberation, and only as the Symptoms present themselver; lylys stead to take off all Refoure from the Uterus are necessary; Bleeding if there be a Fever, pupon no account to be omitted if there be Inflam. mation in thellterus, the Operient Salts are here of great thee, such are the Neutrals, Nitre, Salt of Jurtar and Nitre, or Borax; Parego wice likewise are very proper once, and no more as Sysenham says, for if repeated they become destructive; once may be necefuary to take of too great a Tenvion but more will introduce a Torpor, that she never after brings them down, this was his Brackies, and here let me remind you again of the great Caution to be used in all these Symps stome, and if the Homan does not grow worse you may conclude her better, however the Inflammation and Lever require your partiscular, attention, and why there is this great Danger we need only consider that the wooner attound preternaturally inflames, the worse; and that this is the only place Nature has to discharge her Load and the Effects are if not relieved a Mortification of the Uterus and Doath:

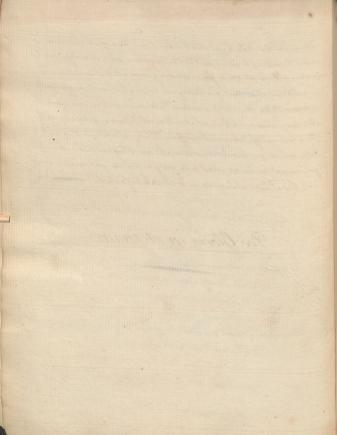
and Deam. Activente attend Delivery, the Lips are some times consperd and fifourd, which may be card by Emollient Tomon takions and Linemonk; the Verinaum happens some times to be lacerated to being cleared of the Socies may be send up by a proper Secole, the body must be hopf laxative to prevent Refure, and bursting open again; If the Uterw falls down, the sometimes the loginar only appears, in Consequence of stretching the Signments there will be great Bain in the Solvin and by prefering on the Blade there, will be as supprefer wice of theire: The Cure must berly evacuating the Rodomen by an horizontal lowition, lance who and Some at a fin to relax and take off Inflammation; then being reduced must be hept up by a Bloory to which may be added topical Ostringents:

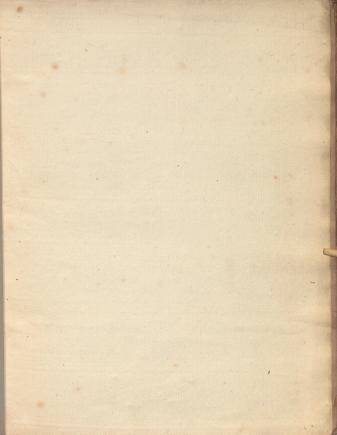
If the Werus beinflamd, it will be attended with Swelling, Pain, Weight and Tension; the Pain will be increased upon Evacuating if Seces, upon the account of a greater Prefoure; it's praternaturally heavy from its encreased Bulk; this will always be attended with an acute Lever with a Difficulty of Breathing by restraining the Deseent of the Jaces; there will be a Hierough which is a very bad Symptom, followed by formiting and Convulsion: This Inflamma tion if general resolves very veloom, but comes to an absects, which is to be wished for; if not the aqueous parts being defsipated it becomes scherrous, and upon any oncreas & Defermination of fluide becomes a faner or degenerates into a Mortification to Death; we must bleed and repeat Bleeding as we would in a Henry, evacuate by emollient by sters and inject Emollients into the Ulerus and anodynes with Caution: If it be turned to a Schirma the Os Utere will be larger, whoster, more unequal and harder, and in Roportion to the Increase of Bulh, it's Haight will be greater, and whetching all the Ligamento oceasion fain in the

Loins, the Groins and Shighe; the Bladder will not beable to return thelline; In treating it, we must use the utmost Caution, last we rouse the Steeping Lon; we may make use of cooling gentle Evocucations to moderate the Symptoms and likewise the light haly beater Waters: fit becomes alancer it will be known by the sharp darling Pain . When aloncer is forms in the Breast il begins with a small Unot which itches very much and then becomes exceeding frain sful; that darling fair is remarkable in all lancers; if it comes to an leter youle have no good digested matter, but a thin felie to black who one if small blood tipele are open, and if larger there will be a black ish brow coagulated; The Ulcer will feel dordied unequal, the Bain will be enceded upon the Expulsion of the Urune & Jaco because of an enere's & hefours; if the topsels are much corroded there will be a large Hamorrhage); Theluserie only palliative by taking of the Inflammation with Refrigerant, and Emollion to which you may add a trill Diet; a great Luans stily of Opeum is vometimes necessary to make the Bain tolera Ble: I knew a Lady who had rendered it so familiar as always to take a Tea Spoon ful of Land anum when whe went into Company in order to enliven her Spirite; and took several of them every Day: after the 50th year Homen whall sometimes have a flux of 13 lood which is the Effect of a Concerous Disposition, and alancer is gent the Consequences: to Gentlemen Shave gone through all the animal Oco

enomy, and describe to you the Structure and the of all the Sarti; it veems according to what the De Huitos ophers said, that Sife was in tended to heep the Body from stinking, and all the Exerctions have benow being the Med the Body from savin when all the Worgan's are in approper Order they art in a certain de forminate thanner; and the Anatomy does not telle us what will cure Defouses, yet if any of the Parts are out of Order, we know from thener what Turn they will take; and so are directed how to make our Prognosticks; thru the you are not instructed what to do, yet you are taught what to avoid; and this I hope I have done to your latinfaction

Deo Gloria in aternum









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